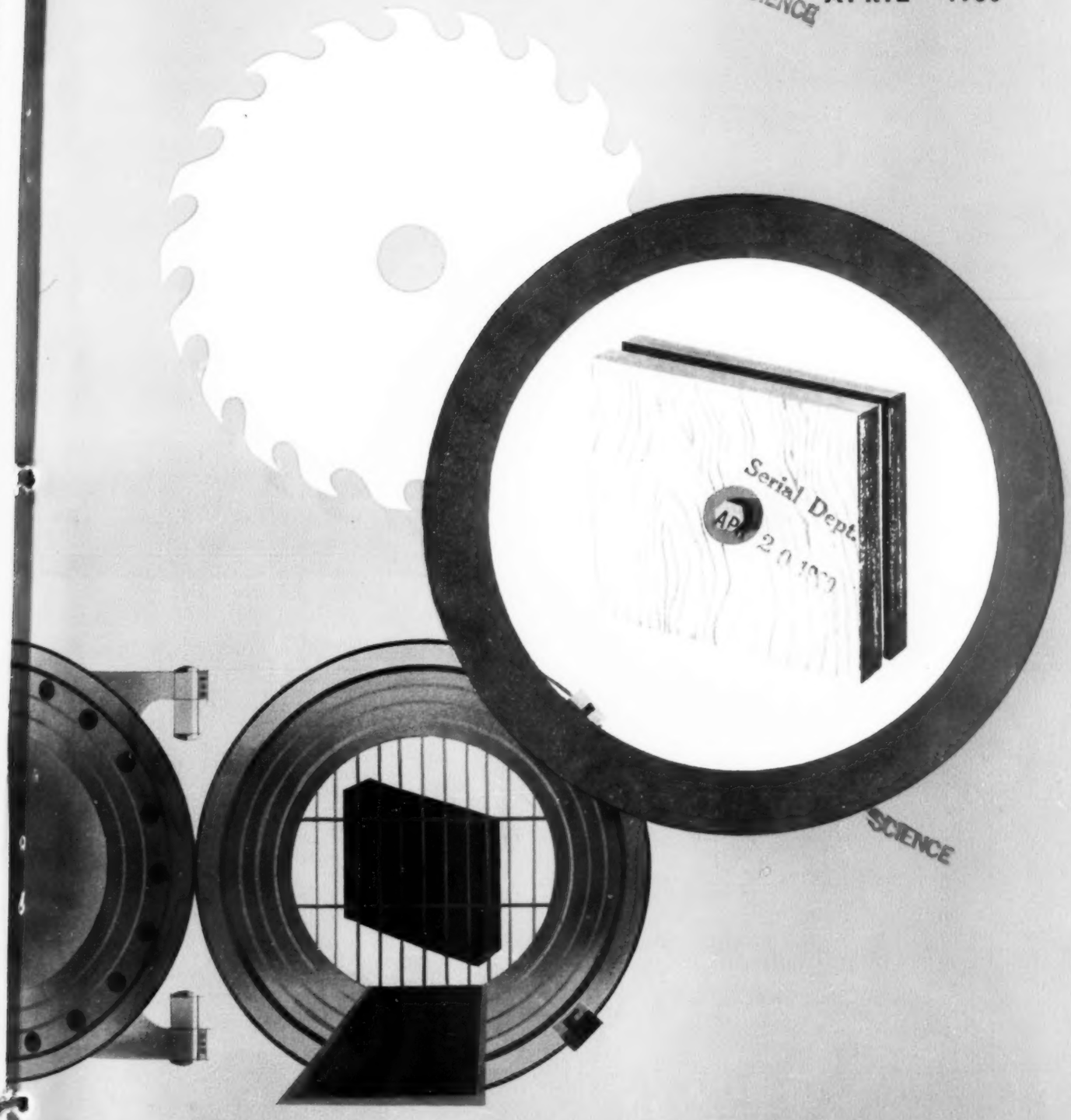
HITCHCOCK'S

wood working digest

SCIENCE

APRIL · 1960



Protecting your Investment in Carbides

Special "V-nose" Spotnailers are used to pin or staple difficult inside corners at Educators Manufacturing Co.

FASTEN WOOD FASTER *by* Pushbutton!

Hammers and nails have almost disappeared from the assembly lines at Educators Manufacturing Co., Seattle, with the installation of "Spotnailers".

Staples or pins are driven, three a second, by just touching a button.

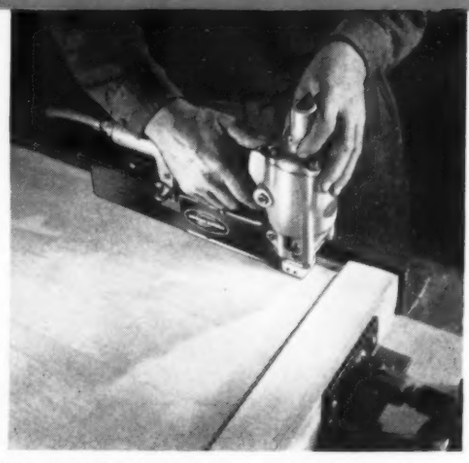
Production is doubled or tripled.

To see how pushbutton nailing can help your plant increase production and reduce manufacturing costs

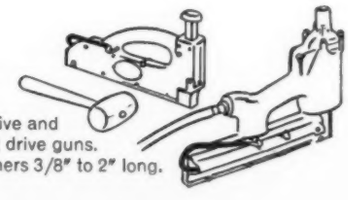
WRITE FOR SPOTNAILS BOOKLET

SPOTNAILS, INC.

EVANSTON 1, ILLINOIS



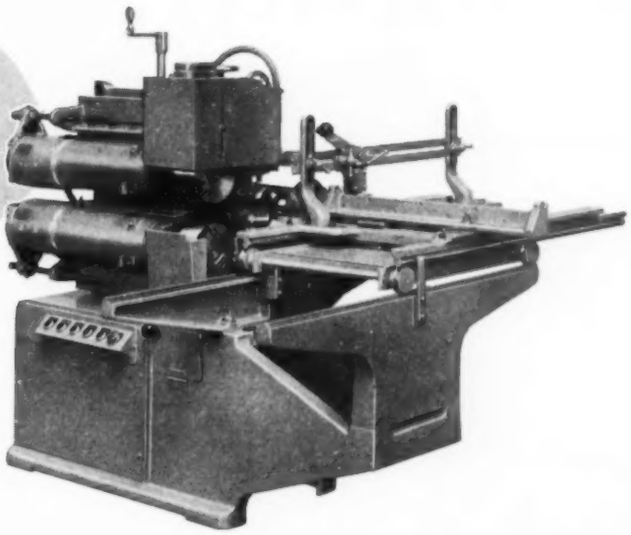
Standard Spotnailers are used for flat surfaces.



Air drive and mallet drive guns. Fasteners 3/8" to 2" long.

"OLIVER" WOODWORKING MACHINERY for quality performance

Makes wide range of intricate cuts swiftly and efficiently

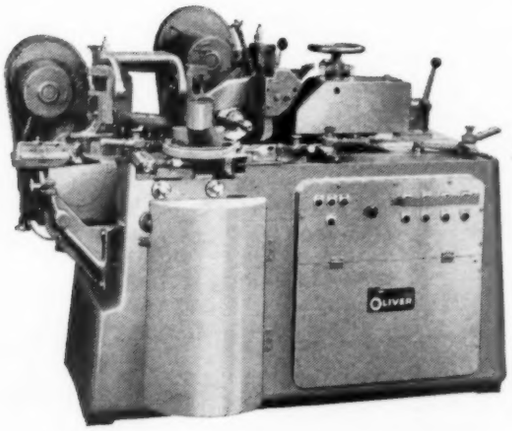


"OLIVER" No. 125-D Single End Tenoner

The "Oliver" Tenoner is designed for tenoning, coping and cutting of stock to lengths, as required in the production of furniture, cabinets, chairs, vehicles, toys, house trim and finish, sash, doors, blinds — or wherever a tenoner of wide range is needed.

Motor-on-Arbor construction applies power directly on the cutting unit, eliminating all unnecessary parts. Other features assure maximum safety, great rigidity and accurate alignment.

Features variable speed drive, compact design, low maintenance - operating costs



"OLIVER" No. 202 Moulder

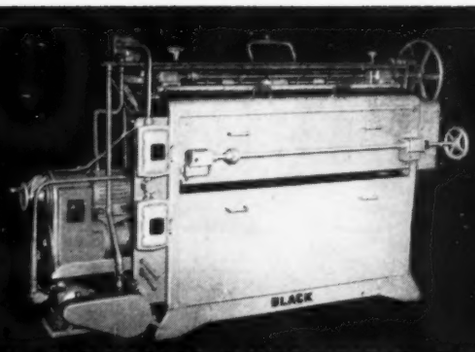
With variable speed drive, the operator selects the most suitable rate of speed for job and material—even when machine is running. It's the most compact moulder! From a standing position, the operator can see and reach almost every operating unit, thus assuring maximum production. Relatively few parts to maintain. Low power consumption. Four dust hoods, arranged to connect easily to customer's exhaust system, are furnished as regular equipment.

Send for free folders giving technical data

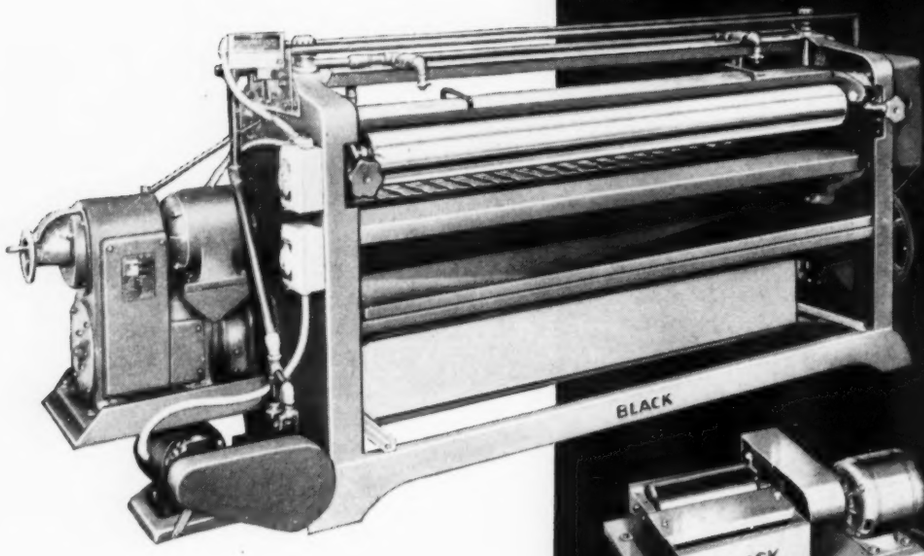
OLIVER MACHINERY COMPANY
GRAND RAPIDS 2, MICHIGAN

BLACK BROTHERS GLUE SPREADERS

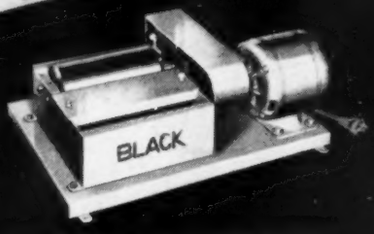
Complete Range of Sizes and Types for Fast, Economical, Accurate Gluing



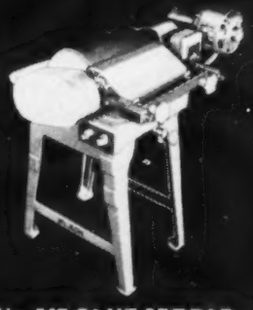
No. 22-D HOODED GLUE SPREADER — The modified 22-D glue spreader is arranged to successfully apply contact cements and adhesives containing volatile solvents. 8″ through 122″ capacities in 6″ increments. *Bulletin 11-A, Part 5.*



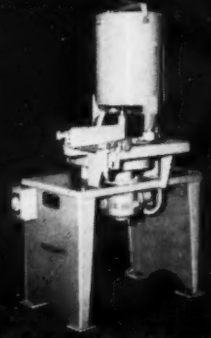
No. 22-D GLUE SPREADER — For resins, caseins, polyvinyls, protein and similar adhesives; 39 sizes in four models; 8″ through 122″ capacities in 6″ increments. Proven the finest spreader available for the purpose. *Bulletin 11-A, Part 4.*



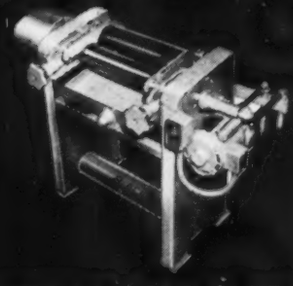
No. 2-8″ BENCH-TYPE GLUE SPREADER — For light edge gluing and similar operations. Roll is 4″ diam. x 8″ long. *Bulletin 11-A, Part 1.*



No. 567 GLUE SPREADER — Floor type, power-driven, hand feed roll glue spreader for edge gluing and similar operations. 12″, 18″ and 24″ roll widths with 8½″ diam. rolls. *Bulletin 11-A, Part 2.*



VERTICAL GLUE SPREADER — Especially designed to speed edge-gluing; eliminates need to turn stock 90 deg. after it comes out of sizing machine. Glues stock up to 4″ thick.



"BOBTAIL" 22-D GLUE SPREADER — For efficient application of resin glues; equally adaptable for other cold glues. Ideal for edge gluing lumber stock or other applications which require bottom coating only. *Bulletin 11-A, Part 2.*

You'll never know how fast, accurate and clean a gluing operation can be 'til you put a Black Brothers glue spreader to work in your glue room. Black's complete line of economical high production glue spreaders contains models for practically every type of adhesive, stock and gluing operation: Single and double glue spreaders from 8″ to 122″ capacity – vertical, hopper-fed, conveyorized, etc. Models, from our bench-type spreaders for laboratory or light production work – to our No. 22-D Super Series for extremely heavy duty operations. Of course, every Black's spreader has the extra-value features which have made them the leading name in gluing equipment throughout the world. Get full details today by writing for product bulletins.

Complete line of gluing, clamping, laminating and roller coating equipment — Since 1882

THE BLACK BROTHERS CO., INC,
MENDOTA 6, ILLINOIS

If you have scrap to burn...

Don't do it!

Make *Bison* Board for use in your plant — or for sale!

Want samples?

We'll send them on request.

Want to see a sample made from your own raw materials in a regular production run?

We can handle it — ask about it.

Want to know more about how you can use Bison Board to improve your line?

We can tell you.

Scraps, trimmings — even shavings — can be made into strong, durable Bison Board that will actually improve your line or find ready sale.

A Bison System installation for your plant can be engineered, installed and proved in production as a lock-and-key job, with highest quality and production guaranteed.

More than 30 installations throughout the world today are turning out superior board, unmatched in the features you're looking for: strength, machinability, finish. *And with lowest installation and production costs per daily ton!*

A Bison Board installation for your plant may be more feasible than you imagine. Get the details — call, wire, or write today.

Sole Distributor in United States and Canada

SODERHAMN MACHINE MANUFACTURING COMPANY

Soderhamn, Sweden • Since 1864 • Talladega, Alabama

***West Coast Sales Office:* 9442 S. W. Barbur Blvd., Portland, Oregon**

Also representing:

BECKER & VAN HULLEN presses — veneer and plywood.

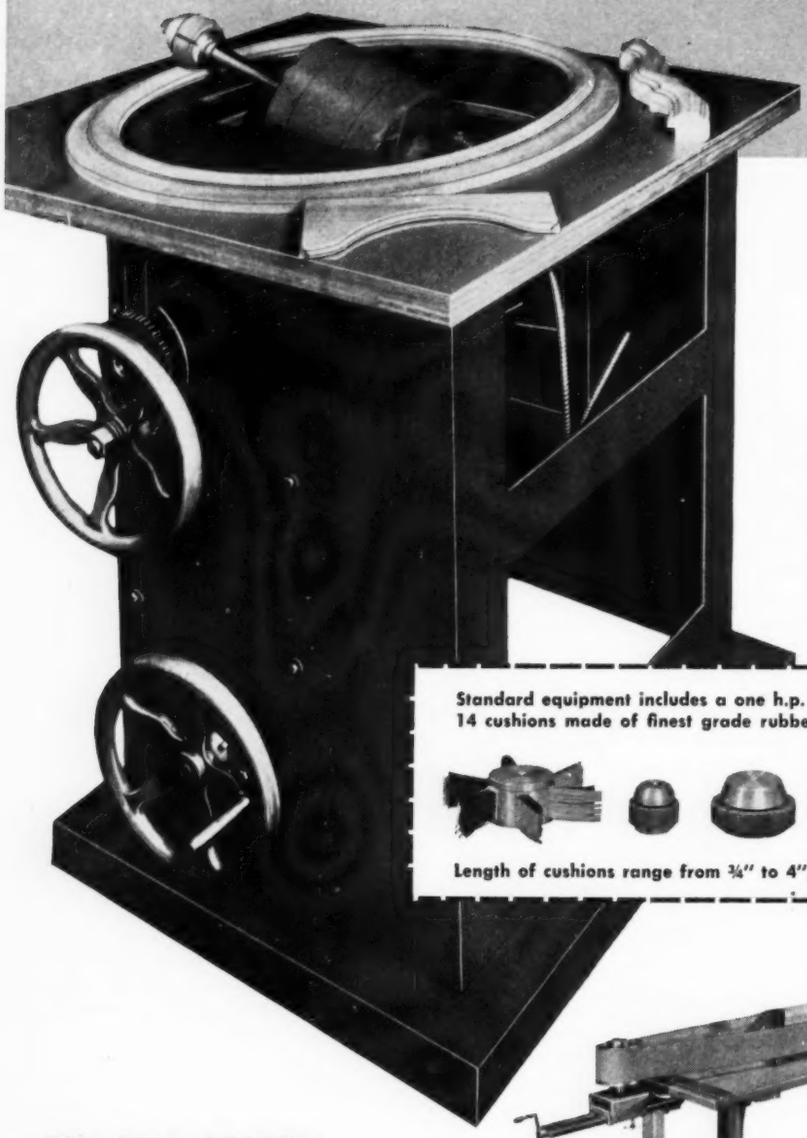
JONSEREDS famous woodworking machines. A complete line of production machines made by the oldest and largest Swedish manufacturer. Catalog on request.

SODERHAMN barking, chipping and screening equipment.

AMERICA'S FASTEST AND FINEST

IRREGULAR

SHAPE SANDER



THE NEW

PEARSON Model "A"

SAVES 1 OR 2 OPERATIONS!

Will not disfigure details! Many plants report this efficient sander saves 60% to 80% on sandcloth! Sands one or more stepdowns at the same time; sands inside radii of circles and very flat tapered moulding. With the Pearson Belt Attachment, shown below, this model can be converted to an all-purpose sander at small cost!

Standard equipment includes a one h.p. dustproof motor and 7 metal heads and 14 cushions made of finest grade rubber—

Length of cushions range from ¾" to 4"; outside diameters, 3¼" to 7".

TABLE BELT ATTACHMENT FOR PEARSON MODEL A SANDER

WE SELL DIRECT!

This enables us to personally instruct your operator to get maximum efficiency from the machine.

This table belt attachment enables you to do ANY sanding that can be done with a 1 h.p., 3 phase motor. Can be attached or detached in only 3 minutes! Our special hand slide babbitt form blocks can be used for straight mouldings. Model "A" Sander and attachment sold together or separately. Write for complete information.

PEARSON SANDING MACHINE COMPANY

HIGH POINT, NORTH CAROLINA

We also manufacture the well-known Pearson Block & Edge Sander

HITCHCOCK'S
woodworking digest

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About the Cover: The artist has dramatized the importance of proper carbide investment and protection in this symbolic drawing. The details of a protective program appear in the article which begins on page 26.

BPA

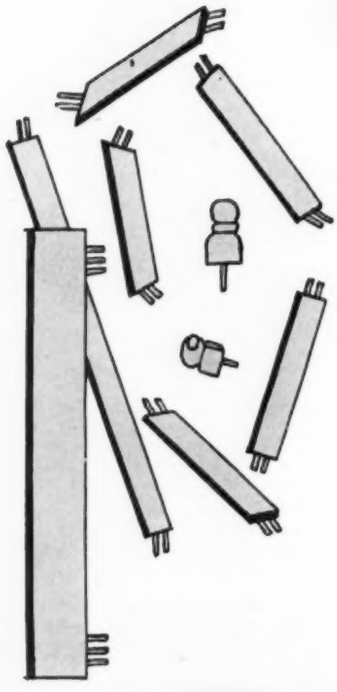
SUBSCRIPTION RATES: Domestic—1 year (12 issues) . . . $4.00 2 year (24 issues) . . . $7.00. Canadian and Foreign—1 year (12 issues) . . . $5.00; 2 years (24 issues) . . . $10.00. Copyright 1960, by Hitchcock Publishing Co., Wheaton, Ill. Phone, MOntrose 5-1000, Cable Address, HITCHPUB.

DOWELED "ON THE DOUBLE"!

with the

NEW BELL-108

drives dowels with amazing speed, accuracy, safety



Step up the pace. Step down your costs. Blast open doweling bottlenecks with the completely new Bell 108 Gluer and Dowel Driver. Its practical perfection was born of long experience in the furniture industry. It's fast, accurate, neat. Just pour dowels into the hopper. The Bell 108 lines them up; injects precisely the right amount of glue; drives in the dowels – one, two, three, or more at a time. Glue is always uniformly applied.

The Bell 108 is safe and easy to operate and maintain. A movable foot switch permits the operator to work anywhere around the table. A new maintenance-free magnetic clutch with "on-off" switch stops and starts the machine in any position and acts as a safety clutch in case of jamming. For utmost safety all driving mechanisms are fully enclosed and guarded.

The Bell 108 can be adapted to handle virtually any size dowel 3/8" to 5/8" in dia. and 1" to 3" in length. It will drive them on centers ranging upwards (in 1/4" units) from 3/4". Find out how the Bell 108 can multiply efficiency and subtract costs for you. For details write:

Bell WOODWORKING MACHINERY

The Bell Machine Company
101 Jackson
Oshkosh, Wisconsin

You can do more with

DELTA

New finishing machine

Doubles as a tool sharpener

4" Belt and 12" Disc Finishing Machine—available with wood or metal dust collector.

This new Delta Belt and Disc Finishing Machine will not only do 95% of all your custom or production finishing jobs, it can actually *save* you the cost of an extra tool! With an *exclusive* new Delta attachment, you can sharpen plane blades, wood or lathe chisels, many carving tools—quickly, precisely and without burning. No other comparable machine offers you this money-saving versatility!

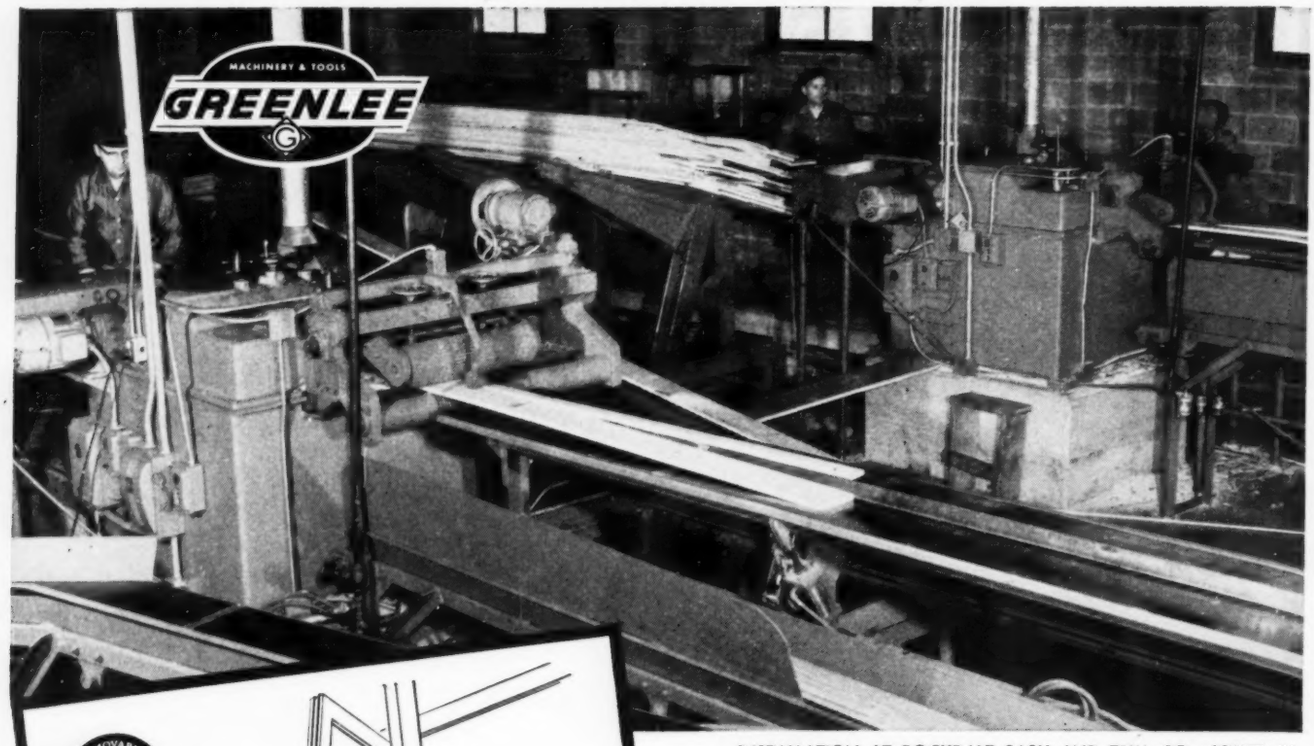
You can do more work faster because you have two machines, mounted on one stand, powered by a single motor. You will like the operating economy you get, but better still, you'll appreciate the many quality extras that Delta's 31 years of experience have built into this machine.

See your Delta Industrial Distributor (listed under "TOOLS" or "MACHINERY" in the Yellow Pages)—he'll give you details on this new machine and show you Delta's entire line of woodworking tools and accessories. For FREE literature, write: Rockwell Manufacturing Company, Delta Power Tool Division, 666D N. Lexington Ave., Pittsburgh 8, Pa. In Canada: Rockwell Manufacturing Company of Canada, Ltd., Box 420, Guelph, Ontario.

DELTA INDUSTRIAL TOOLS

another fine product by

ROCKWELL



INSTALLATION AT ROCKDALE SASH AND TRIM CO., JOLIET, ILL.

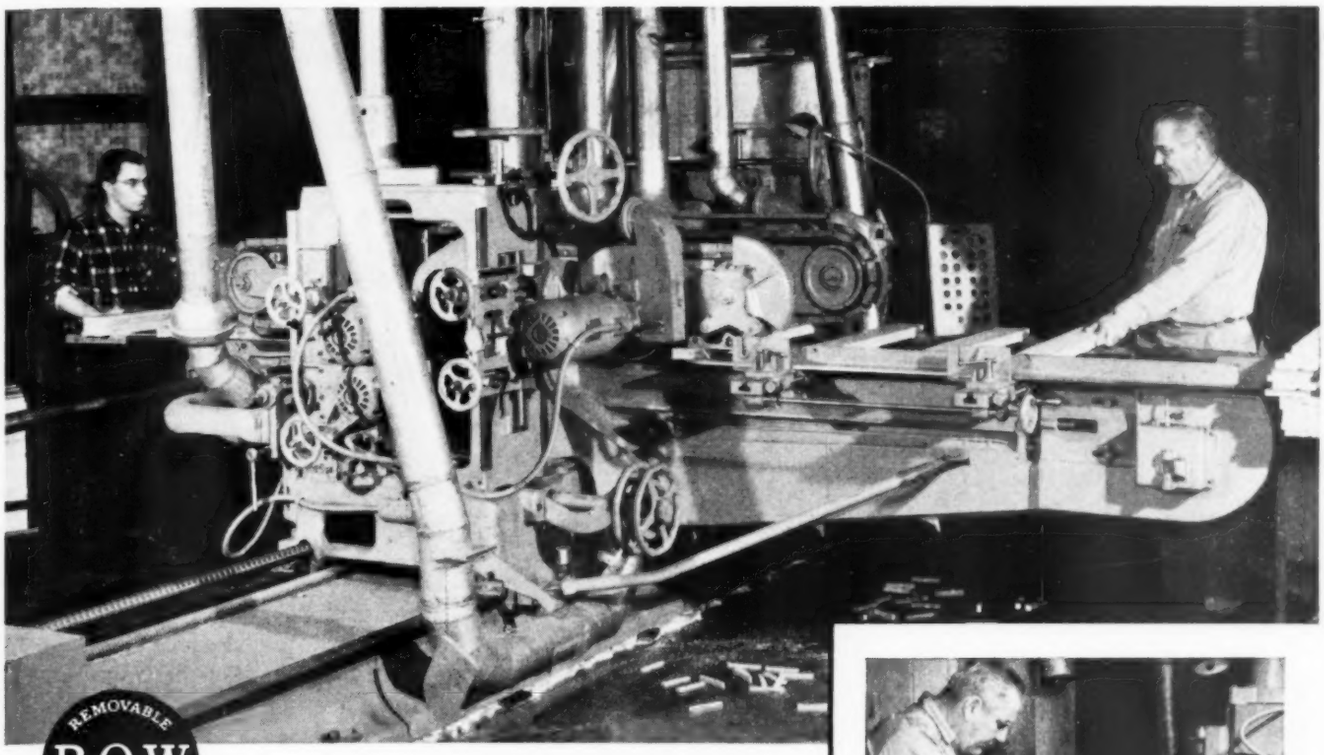
Greenlee No. 431 Ripsaws cut rough lumber for R.O.W. Windows at Rockdale Sash and Trim Co., a franchised manufacturer. The R.O.W. Glider type shown permits instant, easy removal.

GREENLEE No. 431 RIPSAWS provide straight-edge accuracy at lower capital investment

These two Greenlee No. 431 Roll-Feed Ripsaws are always ahead of rough lumber requirements at Rockdale. At present up to 84,000 feet of board are run in 8 hours with plenty of capacity to spare. Arbor motor and power feed rolls are mounted above the table. Rolls can be mounted to cut straight as in the above illustration or parallel to curvature of the stock. Arbor is adjustable for use with carbide or standard saw blades. Write for Bulletin No. 431.

GREENLEE MAKES MACHINES FOR PLANING, SHAPING, TENONING, MORTISING, BORING AND SAWING

MACHINERY & TOOLS
GREENLEE ***Specialized Machines Produce Greater Profits***



REMOVABLE R·O·W WOOD WINDOWS

Extreme accuracy of Greenlee Double-End Tenoners assures precision fit and easy assembly of R·O·W wood windows at ROCKDALE Sash and Trim Co.

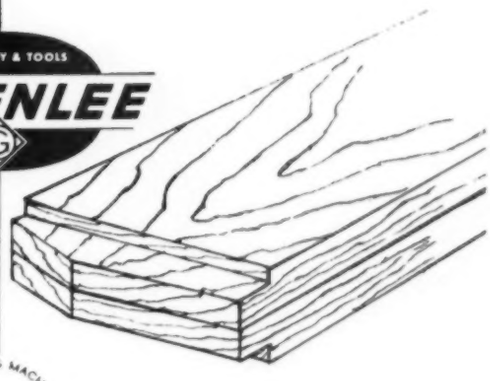
R.O.W. Windows are designed for a lifetime of better living . . . meet the highest quality standards. Rockdale Sash and Trim Co. of Joliet, Illinois, a franchised manufacturer of these well-known windows, uses Greenlee Double-End Tenoners for precision production. On long runs there is no variation between the first and final pieces. Swing-away pressure beams permit full access to cutting units. High production is maintained. For example, at a feed rate of 40 fpm, 400 *pairs* of window frame stiles are run in 30 minutes. Find out more about this versatile machine. Write for complete information. Ask for Bulletin No. 545.

Use GREENLEE Boring, Mortising and Routing tools

Window-Frame Attachment Is Easily Adjusted

Top and bottom tenoning units automatically cut angle gains from 5 to 15 degrees on window frame stiles. They are fed through in pairs without being angled on the dogs.

MACHINERY & TOOLS
GREENLEE



WOODWORKING MACHINERY MANUFACTURERS ASSOCIATION

GREENLEE
BROS. & CO.

1899 TWENTY-FIRST AVE.
ROCKFORD, ILL.

memo to MANAGEMENT

Washington Outlook

Consumer spending has been lower than anticipated. However, it is being blamed on the severe winter weather and predictions are that we may hit a record round of consumer spending this spring. Business spending on new plants and equipment has been 14% higher than in 1959. Spending for inventory, too, has gone better than expected.

Authentic or accurate estimates of the business future are extremely hard to get. It is much easier to see a year-to-year trend than it is to see a seasonal trend.

Administration policymakers are still manifesting an air of restrained satisfaction with current business and stock market trends.

Defense spending in 1960-61 will increase by at least $100 million over the current defense budget.

Import-Export News

Philippine mahogany log shipments to both the U.S. and Japan have been curtailed during the past several months. Importers say it is doubtful if exports of this species will ever approach the quantities reached during the past two years (1958-59). The number of lumber and plywood plants in the Philippine Republic is on the increase, producers point out. Large quantities of logs are being diverted to local processors.

At the same time, the Norwegian furniture industry is looking forward to tripling sales to the United States by 1961! Concentration will be on the high end market as Norwegian furniture manufacturers have pretty well given up the idea of reaching the medium, or mass-produced market. Chairs and tables are expected to be the main exports.

Let's Promote Forest Products Week

As many of our readers know, October 16-22, 1960, has been set aside as National Forest Products Week. It is none too early to plan promotion for your plant and your product. How can you best contribute and profit from this week when the nation's thinking will be directed toward forest products?

Here are a few suggestions that have come from Hoo-Hoo International, a fraternal order of lumbermen with local clubs all across the country.

1. Coordinated advertising for "the week" in the local press, TV and radio. The newspapers may even be interested in working up a special "Forest Products Week Supplement," if advertising potential justifies it.

2. Editorial, news and feature support in newspapers, TV and radio for items on forest products, the industry, wood in architecture, forestry, etc.

3. In advance, poster and essay contests in schools. Awards and displays of winning entries during "the week."

4. Hold open house at production plants; open house at retail yards with accent on instruction in use of wood, etc.

5. Cover each service club during the week with talks and films; also PTA's, church groups, etc. Distribute wood promotion literature.

6. Get cooperation of merchants for window displays on forest products, history of the industry, forestry, etc. Volunteer to set up or contribute material for displays.

7. Get cooperation and recognition from local Chamber of Commerce. Perhaps they will sponsor a special chamber banquet or other event during "the week." All phases of forest products are important to your chambers; they are a source of valuable help.

You may adapt these suggestions to your own situations. However, to provide as much help as we can, the editors are planning a monthly feature which will help you prepare for National Forest Products Week.

This is a tentative schedule of the material to be found in future issues of *Hitchcock's WOOD WORKING Digest*: May—How To Plan An Open House; June—How To Arrange a Company Display; July—Materials Available For Distribution or In-plant Viewing; August—Programming for Local Groups; and September—Are You Ready?

Meetings For Woodworkers

April

4- 6 Southern Pine Association, annual convention, New Orleans, La.

4- 6 American Ladder Institute, spring meeting, Chicago, Ill.

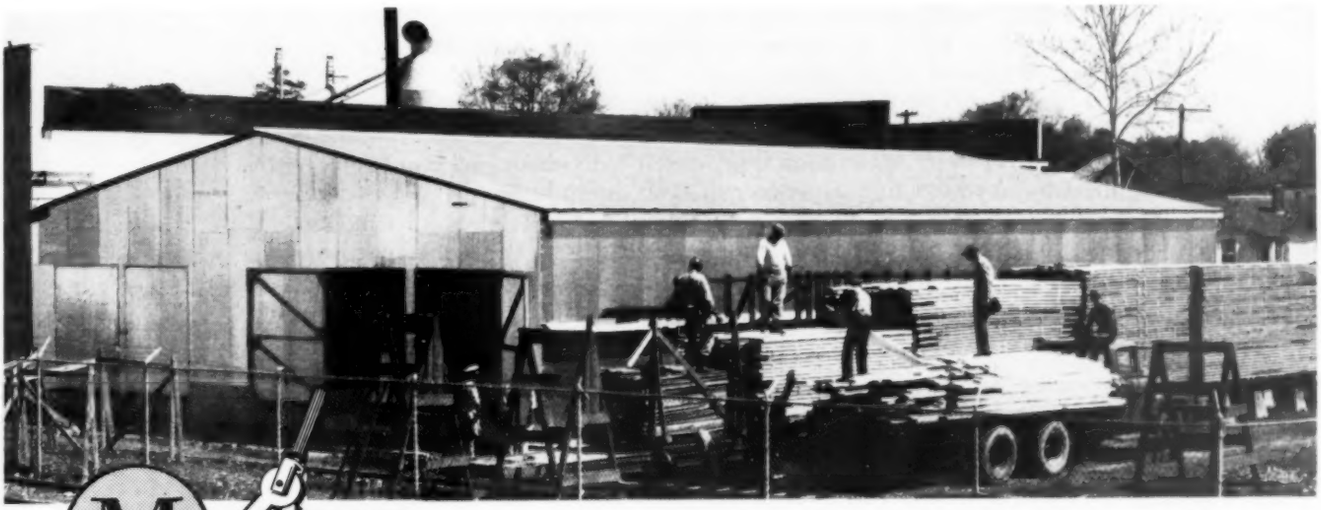
25-26 Northeastern Lumber Manufacturers' Assn., annual meeting, Syracuse, N.Y.

May

1- 3 Hardwood Dimension Manufacturers' Assn., plant tour, Little Rock, Ark.

Moore
FORCED AIR DRYER

PRODUCES BRIGHTER, FLATTER LUMBER--TURNS INVENTORY FASTER



Drying hardwoods with Moore Forced-Air Dryer at Dixon-Powdermaker Furniture Co., Jacksonville, Fla.

MOORE MODERN METHODS

Moore Modern Methods and the Moore Forced Air Dryer produce brighter, flatter lumber by eliminating weather extremes experienced in yard drying.

With the Moore Forced-Air Dryer a uniform flow of air is forced through the loads—removing moisture faster and seasoning pine or hardwoods to air-dried moisture content.

By seasoning faster, the Moore Forced-Air Dryer increases existing kiln capacities, turns inventory faster and produces brighter, flatter lumber with less stain.

The Moore Forced-Air Dryer offers further savings through low equipment and building costs. Designed for loads on rails or unit packages—5,000 board feet and up.

There's a Moore Forced-Air Dryer to fit your needs. Write today for information and estimates.

- Dry Kilns (Track and Unit Package)
- Direct Heat Kilns
- Forced Air Dryers
- Cabinet Dryers
- Prefab Kiln Buildings
- Cross-Circulation Veneer Dryers
- Roller Veneer Dryers
- Steam Generators
- Recorder-Controller Instruments
- Fan and Heating Systems
- Dry Kiln Doors
- Dry Kiln Paints
- Moisture Meters
- Kiln Check-Up Service Plan

MOORE DIVERSIFIED PRODUCTS MEAN MORE PROFIT FOR YOU!

MOORE DRY KILN COMPANY

MOORE SINCE 187[illegible]

JACKSONVILLE FLORIDA | BRAMPTON ONTARIO | VANCOUVER BRITISH COLUMBIA | NORTH PORTLAND OREGON

World's Largest Manufacturers of Drying and Handling Systems for Lumber and Veneer

For information about any Advertised product, see the Advertisers Index and Action Card inside back cover

The Editor's Page

A Code of Ethics For The Woodworking Industry?

In this day when, as one manufacturer phrased it, "Anything we make, we can sell," the suggestion of a code of ethics for *all* of the wood products manufacturing industry may seem to belong in an ivory tower.

Last month a group of successful business men—manufacturers and distributors of woodworking machinery—got together for a two-day meeting and one of the highlights of the program was "Consideration of the Proposed Code of Ethics." The men who attended the mid-March meeting of the Woodworking Machinery Distributors Association represented individuals and companies easily recognized by anyone who can name names in the industry.

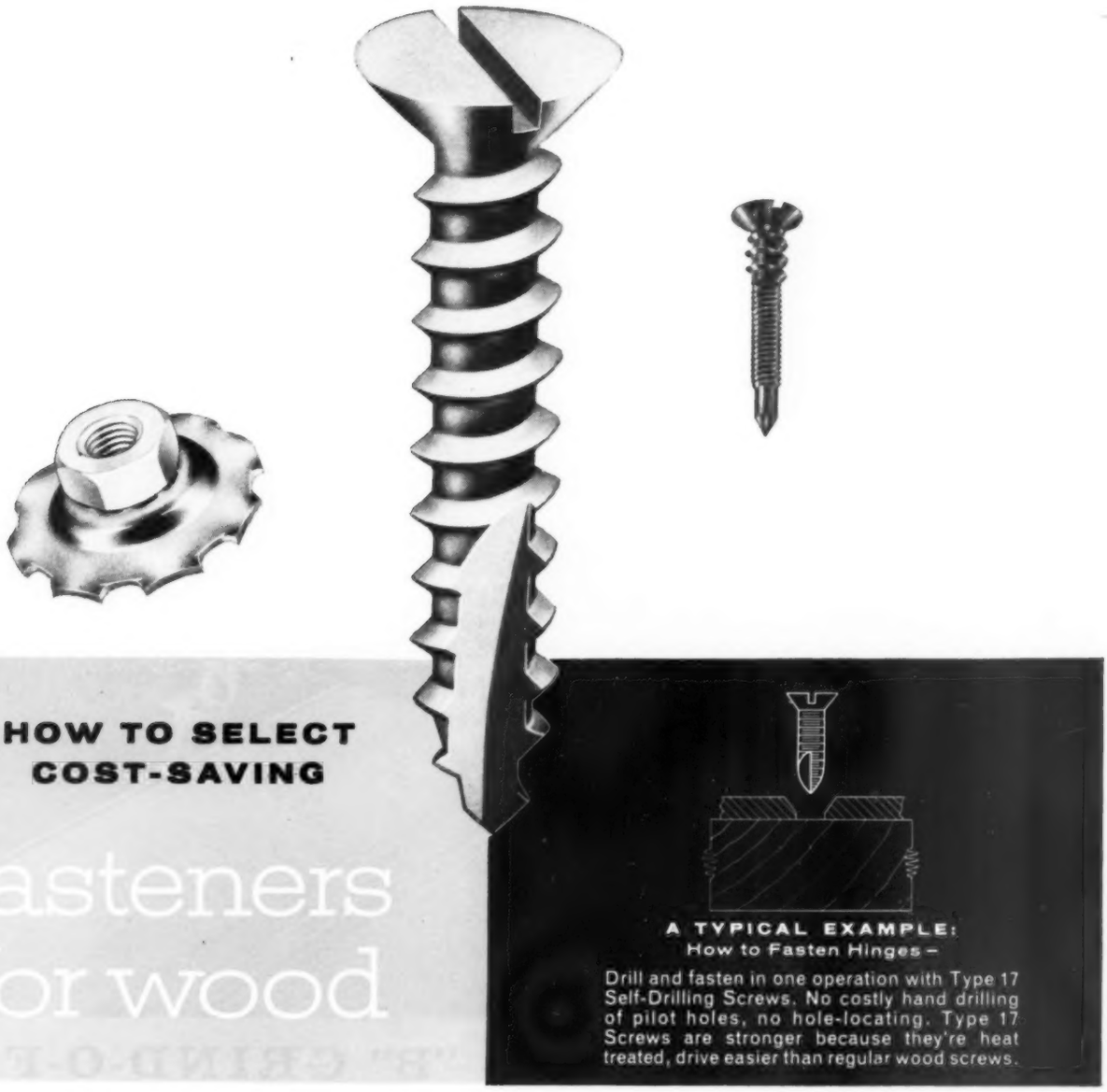
There are a number of ideas or statements in the code of ethics which would show that these men are interested in doing something for the whole woodworking industry—their vision has not been limited to individual machinery sales figures.

With their permission, I would like to adapt some of the statements into a code which could hang in the office of every individual associated with the woodworking industry. In addition to individual company standards, it would be a universal code.

> We believe that the foundation of business is confidence which springs from integrity, fair dealing, efficient service and mutual benefit.
>
> In order to promote the highest degree of ethical standards and fair competitive practices among all engaged in the woodworking industry, the following principles of honorable business conduct should be observed:
>
> To strive at all times by sincere and intelligent cooperation to maintain cordial and friendly business relations with all persons associated directly or indirectly with our industry.
>
> To practice fair and honorable competition and at all times to be inspired by the highest ideals of business conduct.
>
> To refrain from inducing breach of contract, or from knowingly accepting orders previously placed with competitors in good faith by their customers.
>
> To provide assistance as possible to all those engaged in the woodworking industries, or aspiring to enter this field.
>
> To refrain in advertising, or in any contacts with customers, from misrepresentation of products, prices or business policies.
>
> To strive at all times to promote the increased efficiency of the woodworking industry.
>
> To promote all wood products and utilization of wood that the entire industry may benefit.
>
> To be guided by the concept that equitable consideration is due in business alike to capital, management, employees and the public.

If enough intelligent, thinking members of our great industry would accept such a code—and make it a real part of company planning and achievement—we could do more than anyone might guess to raise the prestige of the industry, the professional status of woodworkers, and the unwritten guarantee of our products!

E. McDaniel
Editor



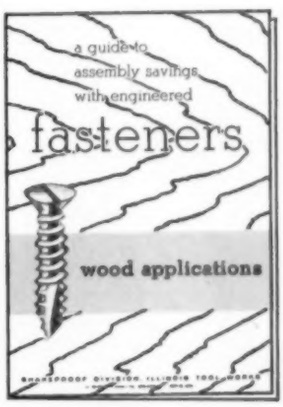
HOW TO SELECT COST-SAVING

fasteners for wood

A TYPICAL EXAMPLE:
How to Fasten Hinges –

Drill and fasten in one operation with Type 17 Self-Drilling Screws. No costly hand drilling of pilot holes, no hole-locating. Type 17 Screws are stronger because they're heat treated, drive easier than regular wood screws.

Remarkable new efficiency and cost-savings can now be achieved in metal-to-wood and wood-to-wood assembly! Ordinary wood screws are being replaced by screws that drill their own holes. Washers can be ordered pre-assembled to nuts or screws. A double-purpose lock washer that replaces two separate parts, a fastener that won't strip . . . these and many other Shakeproof-engineered fasteners offer substantial savings to plants using them in production quantities.

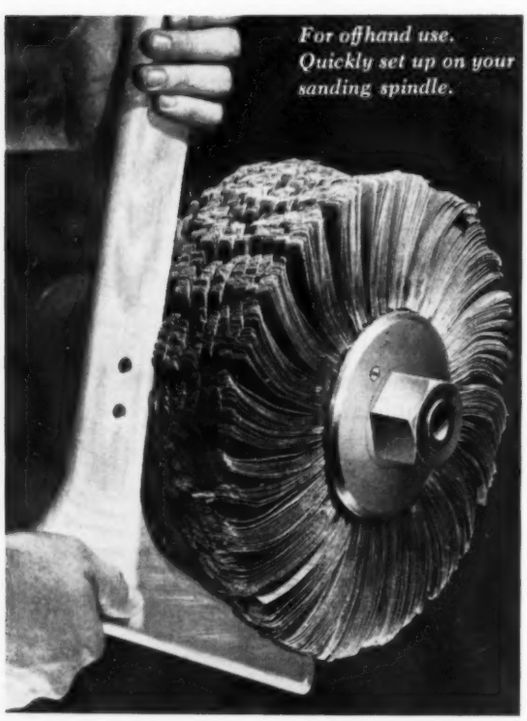


SEND FOR NEW SHAKEPROOF BULLETIN NO. 500!

Specific recommendations for fastening into wood are illustrated, along with helpful, time-saving assembly suggestions. With today's high costs, you can't afford to overlook the fastener savings described in this bulletin. Write for your copy today.

SHAKEPROOF
"FASTENING HEADQUARTERS"®
DIVISION OF ILLINOIS TOOL WORKS
St. Charles Road, Elgin, Illinois
In Canada: SHAKEPROOF/FASTEX
Division of Canada Illinois Tools Limited, 67 Scarsdale Road, Don Mills, Ontario

with the Merit Type "B" GRIND-O-FLEX



The new Grind-O-Flex, Type "B" flexible abrasive wheel is designed to provide the fastest, smoothest finish to ANY SHAPE — moldings, carvings, flutes, beads, corners. The wheel produces a resilient, exceptionally smooth abrasive action that literally envelopes the part.

Formed of thousands of fine filaments of coated abrasive, the Merit Type B wheel makes production sanding easy because of these important features.

- **self-dressing**
- **no adjustments required**
- **one loading lasts hundreds of hours**
- **no bothersome brushes**
- **forms to the work piece**

AVAILABLE IN ANY WIDTH TO COVER SURFACES FROM 2" TO 5 FT. WIDE

MERIT PRODUCTS, INC.

First choice is always a product of Merit

3691 Lenawee Avenue, Los Angeles 16, California

job-balanced BORDEN ADHESIVES

KEEP PRODUCTION MOVING PROFITABLY

NEWS: Construction's up and there's new demand for flush doors, plywood, particle board, glulams, furniture. That means more pressure on gluing operations.

THE ANSWER: You can keep your gluing department moving smoothly and *profitably* by specifying job-balanced Borden adhesives tailored to specific job needs.

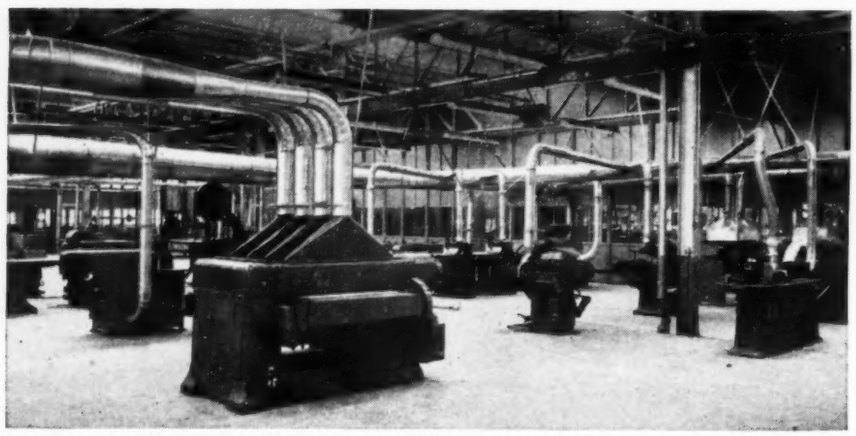
PROOF—PLUS: The wood industries have profitably used dependable Borden adhesives for years. The reasons are simple. Every ingredient in a Borden adhesive is carefully balanced to meet specific job requirements. And there's a Borden adhesive for every job—hot press, cold press, RF gluing, plastic surfacing, assembly gluing, edge gluing, tapeless splicing, no-clamp, metal to wood gluing.

DON'T JUST BUY—SPECIFY: Specify the *right* adhesive for your job—a job-balanced Borden adhesive. Borden specialists can help you set up an adhesives program based on your specific needs. For information, write The Borden Chemical Company, Chemical Division, Dept. HW40, 350 Madison Avenue, New York 17, N. Y.

IF IT'S A Borden Chemical IT'S GOT TO BE GOOD!

For complete flexibility and expandability . . . exclusive K & B Plenum Main System.

No two dust control problems are alike!



Highly efficient, low cost Tapered Main System, for fixed machine location.

Since no two dust control problems are alike, a Kirk and Blum engineering survey determines the exact nature of *your* specific application. It's all part of K & B's *complete* service to assure you the best system for your particular need, all factors considered.

From survey time until the system is completed and in operation, Kirk & Blum handles the entire job with one undivided responsibility . . . a condition only possible when you have *one* source for all service, *one* guarantee for all components.

Write today for the new 52-page K & B Catalog or a no-obligation survey of your particular problem. The Kirk & Blum Mfg. Co., 3121 Forrer St., Cincinnati, 9, Ohio.

KIRK & BLUM

Complete Dust Control Systems

Letters To The Editor

Designs Wanted

"We would like to know if you publish any magazines or know where we may obtain some, that feature designs and layouts for church furniture, also bar rails for cafes."

—E. D., Massachusetts

Help in Layout

"We are considering re-arranging our woodworking department which manufactures handles for floor sweeping brushes. Can you suggest someone who might be helpful to us in layout?"

—P. H., Virginia

Would Like Magazine

"We saw your magazine in an out-of-town office. Please send it to us from now on as we believe you have excellent reporting on highly specialized subjects."

—G. A., Chicago, Ill.

Tearsheets, Please

"Thank you for the copies of the article 'Curtain Coating Picture Frames!' I can assure you that we will put these to good use."

—H. E., South Carolina

"Please forward, to my attention, a reprint of the beautiful Nativity scene featured on the cover of your December issue."

—W. T., Wisconsin

"Please mail us a copy of your memo, 'Trees of Life!' "

—E. G., Louisiana

Please Help Us Find

"We are trying to locate a manufacturer of wood lathes to make boat paddles. Where can we get this wood lathe?"

—P. S., Louisiana

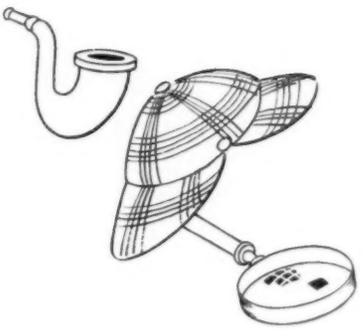
"Would like to purchase basswood slats, similar to those used in Venetian blinds. Stock is to be ⅜" x 1¾", sanded and random length."

—M. P., Pennsylvania

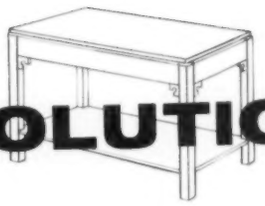
"We need a light, portable, high speed machine which will fasten wood strips 5/16" thick on plaster or brick walls. We are familiar with the Remington-Ramset type, but this is somewhat clumsy for our type of work.

—R. D., Rio de Janeiro

FURNITURE MANUFACTURERS . . . CABINET MAKERS . . . PATTERN MAKERS . . . WOOD PRODUCT MANUFACTURERS



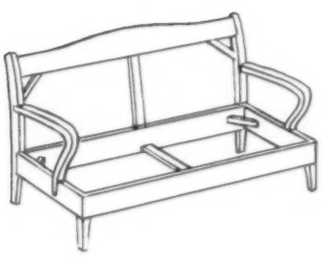
. . . THE SOLUTION



TO YOUR BORING

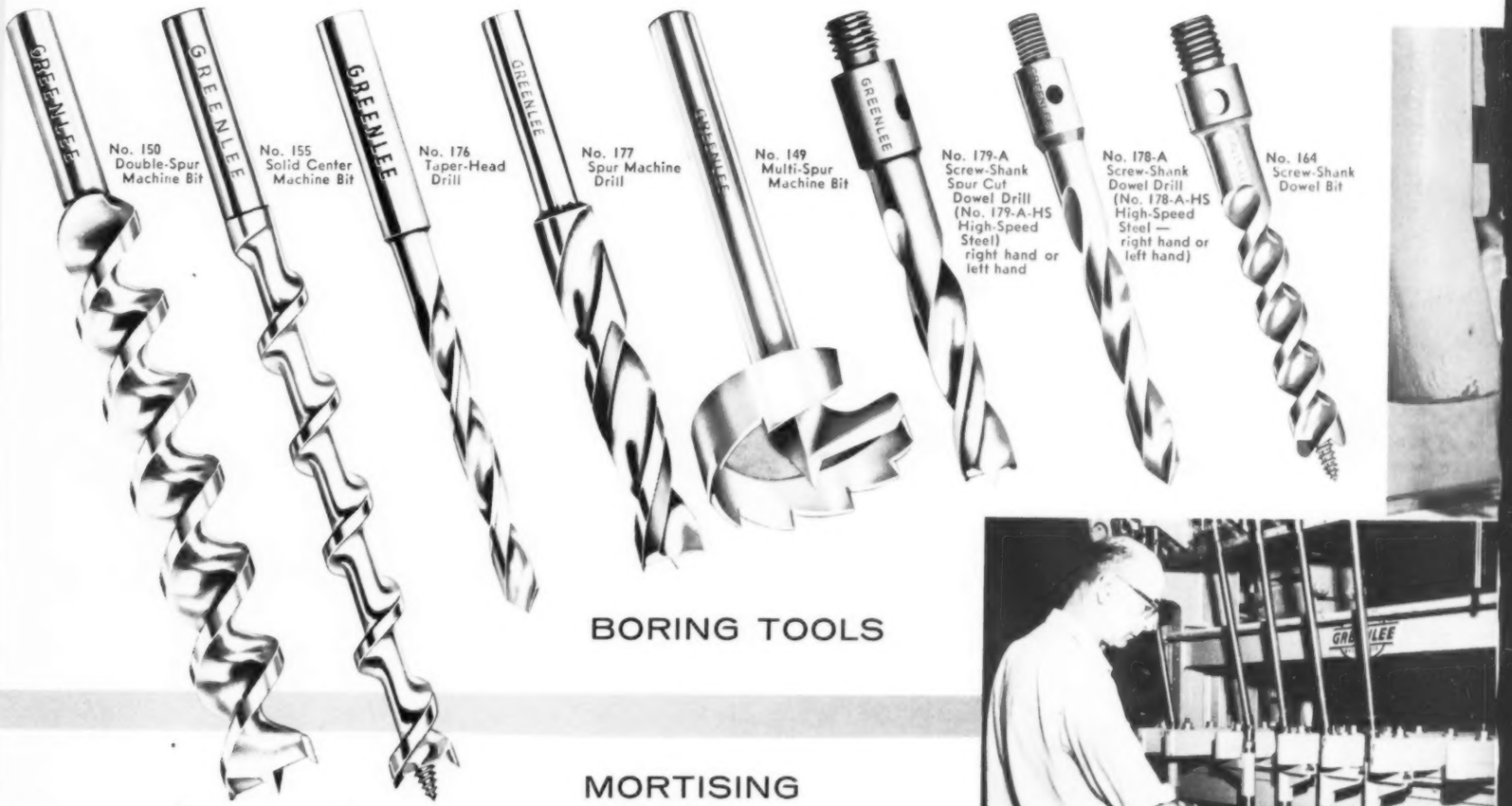
AND MORTISING

PROBLEMS



FURNITURE MANUFACTURERS . . . CABINET MAKERS . . . PATTERN MAKERS . . . WOOD PRODUCT MANUFACTURERS

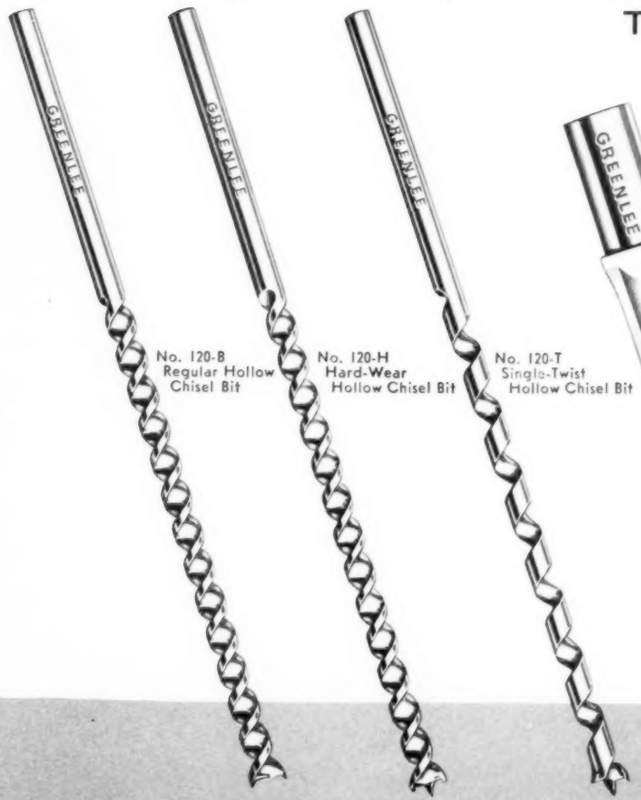
GREENLEE TOOLS STAY ON
TO MEET DIFFICULT PRODUCTIO

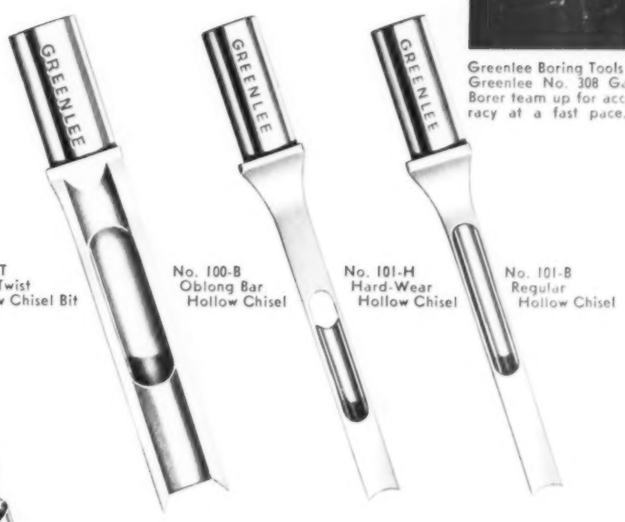

GREENLEE
No. 150 Double-Spur Machine Bit
No. 155 Solid Center Machine Bit
No. 176 Taper-Head Drill
No. 177 Spur Machine Drill
No. 149 Multi-Spur Machine Bit
No. 179-A Screw-Shank Spur Cut Dowel Drill (No. 179-A-HS High-Speed Steel) right hand or left hand
No. 178-A Screw-Shank Dowel Drill (No. 178-A-HS High-Speed Steel — right hand or left hand)
No. 164 Screw-Shank Dowel Bit

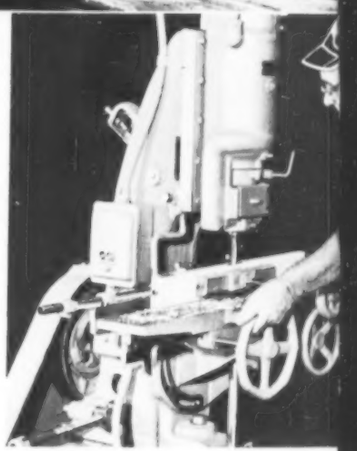
BORING TOOLS

Greenlee Boring Tools and Greenlee No. 308 Gang Borer team up for accuracy at a fast pace.

MORTISING TOOLS







GREENLEE TOOL CO.

MACHINE MANUFACTURERS . . . CABINET MAKERS . . . PATTERN MAKERS . . . WOOD PRODUCT MANUFACTURERS

EE TOOLS STAY ON
FICULT PRODUCTIO

hine

No. 149
Multi-Spur
Machine Bit

No. 179-A
Screw-Shank
Spur Cut
Dowel Drill
(No. 179-A-HS
High-Speed
Steel)
right hand or
left hand

No. 178-A
Screw-Shank
Dowel Drill
(No. 178-A-HS
High-Speed
Steel —
right hand or
left hand)

No. 164
Screw-Shank
Dowel Bit

RING TOOLS

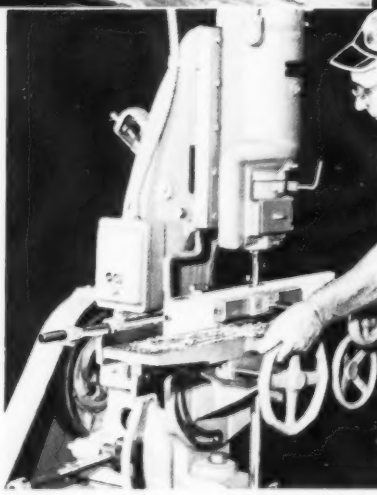
RTISING
OLS

No. 100-B
Oblong Bar
Hollow Chisel

No. 101-H
Hard-Wear
Hollow Chisel

No. 101-B
Regular
Hollow Chisel

Greenlee Boring Tools and Greenlee No. 308 Gang Borer team up for accuracy at a fast pace.



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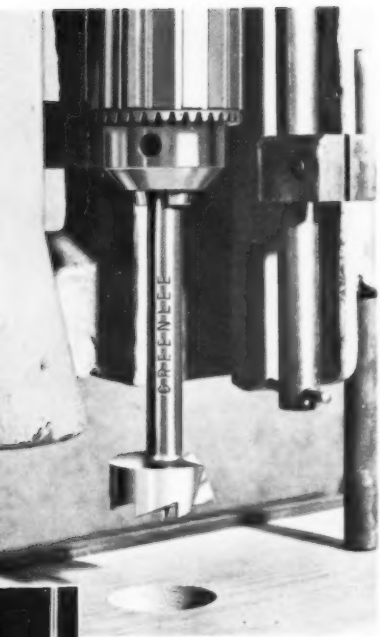
GREENLEE TOOL CO.

D

N THE JOB
ON SCHEDULES

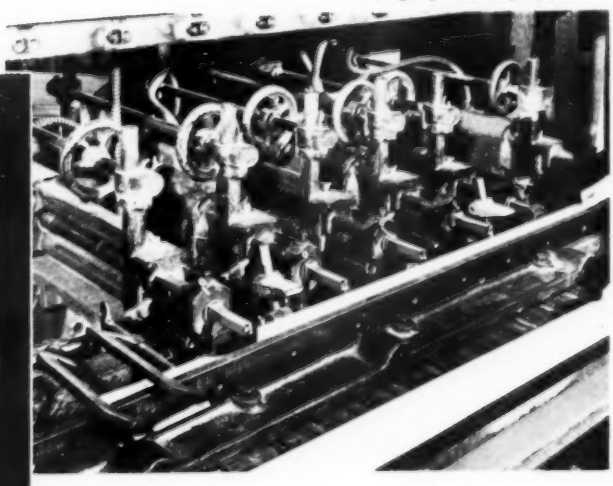


Greenlee No. 149 Multi-Spur Machine Bit in door-boring operation.

The best test of a tool's quality of design and materials is a long production run. When a tool performs well hour after hour, day after day, you know you can expect and get top performance at all times. Hardwood or soft . . . high or low in moisture content . . . Greenlee tools stay on the job to meet difficult production schedules . . . hold downtime for tool replacements to a minimum. Greenlee tools assure this type of performance because of Greenlee's high standards of selection, testing and heat treating of steels and alloys. Your local Greenlee jobber will be glad to show you the complete Greenlee line and help you select the proper tools for your requirements. Try Greenlee tools just once and you'll agree that Greenlee tools are made *for* craftsmen . . . *by* craftsmen.

GREENLEE

Greenlee Hollow Chisels and Bits and Greenlee No. 212-M Multiple-Spindle Mortiser set up for gang-mortising operation.



Greenlee Hollow Chisel and Bit and Greenlee No. 227-BM Hollow-Chisel Mortiser.

WRITE FOR CATALOG 36-M

Your complete guide to all GREENLEE TOOLS for woodworking machines

Division of GREENLEE BROS. & CO.

1901 HERBERT AVENUE, ROCKFORD, ILLINOIS

DO THE JOB FASTER...EASIER...BETTER
DO THE JOB WITH GREENLEE TOOLS

No. 184 Multi-Spur Countersink Cutter with Solid Center Machine Bit

No. 198 Adjustable Countersink

No. 199 Adjustable Countersink

No. 195 Adjustable Countersink

No. 192 Adjustable Countersink Cutter

No. 191 Adjustable Countersink Cutter

No. 186 Countersink Drill

No. 185 Countersink Drill

Greenlee Straight-Shank Drills are recommended for use with Greenlee Adjustable Countersink Cutters and Adjustable Countersinks.

COUNTERSINKING TOOLS

Greenlee Countersink and Greenlee No. 356 Borer in operation.

ROUTING TOOLS

No. 143-D High-Speed Steel Double-End Router

No. 146 High-Speed Steel Routing Bit

No. 142 Alloy Steel Routing Bit

No. 143 High-Speed Steel Single-Flute Router

No. 146-C Carbide Double-Flute Routing Bit

No. 143-C Carbide Single-Flute Routing Bit

SEE YOUR GREENLEE JOBBER
OR WRITE DIRECT FOR CATALOG 36-M

TOOLS FOR CRAFTSMEN

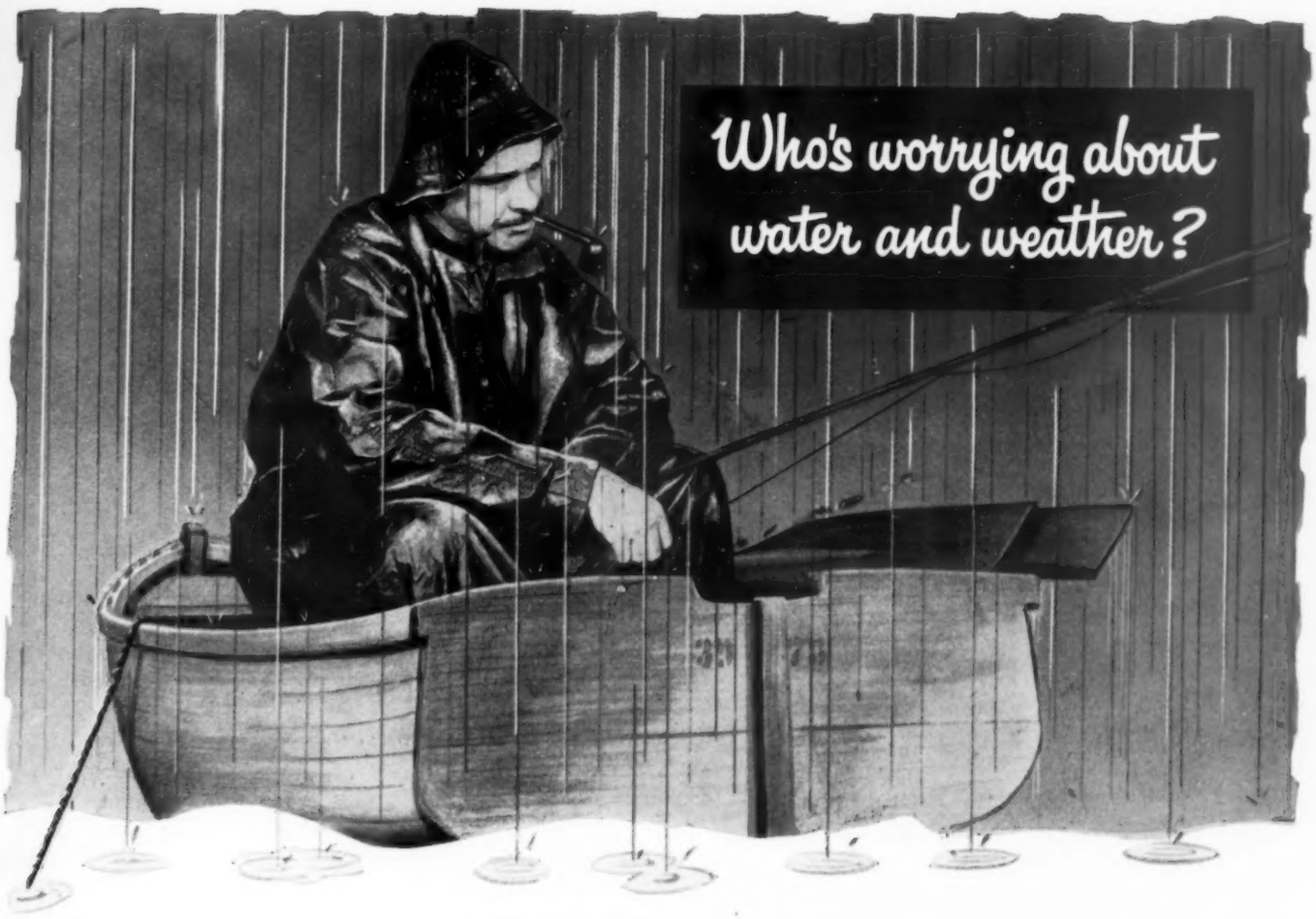
GREENLEE

Begin with Greenlee tools... they're better to begin with

GREENLEE TOOL CO.

DIVISION OF GREENLEE BROS. & CO.

1901 HERBERT AVENUE, ROCKFORD, ILLINOIS



National Casein's R3 provides the most waterproof and weatherproof bond obtainable!

National Casein R3 is used also as a fortifier for Urea Resin glues where greater water and craze resistance is desirable. Having trouble meeting requirements of Spec. Mil-A-397B—ask the National Casein office nearest you for samples of "R3" and technical help in adapting it to your glue line. No obligation.

Waterproof . . . boil-proof . . . mold-proof—National Casein's R3 Resorcinol Resin Glue is recommended for any product made of wood that is destined for outdoor use under extraordinary conditions of water, weather and humidity.

National Casein's R3 Resorcinol Resin Glue is used for cold press work at 75° F. It is used also for hot press work and high frequency gluing, because it is thermo setting.

For aircraft and marine grade plywood . . . laminated timber construction . . . paneling and structural units for prefabricated housing, and for bag moulding construction you will find National Casein's "R3" positive assurance of your product's performance.

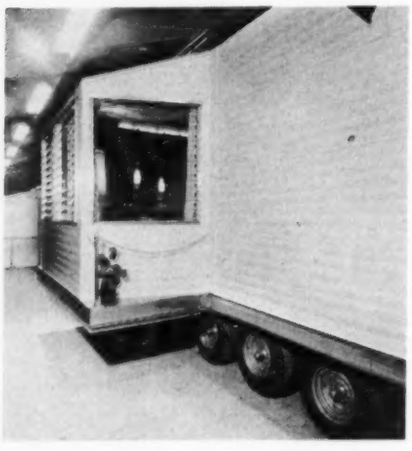
National Casein

National Casein Company, 601 W. 80th Street, Chicago 20, Illinois
National Casein of New Jersey, Broad & Fulton Streets, Riverton, New Jersey

News Notes In Brief

Manufacturer Adds Space With "T" Room

One of the exhibitors at the recent Mobile Home Manufacturers Association show in Louisville, Ky., has been Zimmer Industries of Elwood, Ind. This company has introduced a "T" room design which adds approximately 40 sq. ft. of floor space to the living room—a room about 4′ x 10′ which tips inside when the mobile home is moved on the highway.

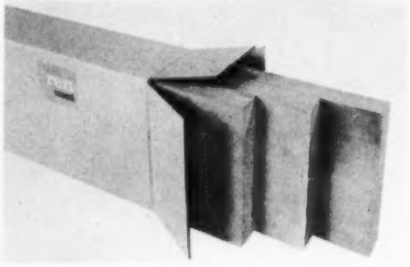


The "T" room has been engineered and constructed to insure ease of operation—no tracks, no slides or loose panels. The interior is finished in polished black walnut.

Another model by this same manufacturer features a bedroom with a private bath. This manufacturer, along with others, is making the mobile home as spacious and comfortable as possible. Mobile home manufacturers, of course, are hoping to attract as much of the low-cost home market as possible.

Plastic Planking

A new plastic planking product, designed to replace mahogany and



impregs as a pattern and model making material, will be on display at the American Society of Tool Engineers Show. This event will be held in Detroit, Mich., April 21-28. Called "Ren Wood," the plastic planking is supplied in standard lumber sizes of 1′ wide by 6′ long and in thicknesses of 2″ and 2½″. Shorter planks are available on special order. Density of the plastic planks is comparable to that of mahogany. It may be machined with conventional woodworking tools.

The manufacturer says, "With proper techniques the planks will take nails and screws."

Is this a competitive product worth testing? (See "We Need To Test Competitive Products," page 12, February issue.) This material will be introduced as a perfect medium for model and pattern-making. In the manufacturer's evaluation of mahogany *vs.* plastic planking, mahogany scores *higher* or the same on all points—there are eight—except "uniformity from plank to plank." Here plastic planking is rated as excellent and mahogany as "very good."

It has long been our opinion that wood in its various forms and by-products has not been adequately represented at various shows such as maintenance, design, basic materials, etc. Is this another instance?

Walnut Group Plans Exhibit Of Fine Finishes

An exhibition of fine woodwork finishes, selected and evaluated by a jury of experts, will be held in Chicago's Merchandise Mart this summer in connection with the mid-year Home Furnishings Market.

Every finish manufacturer is eligible to submit one or two finishes in any or all of four categories. The association will provide participants with 16″x24″ panels, made of specially selected walnut plywood, for their entries.

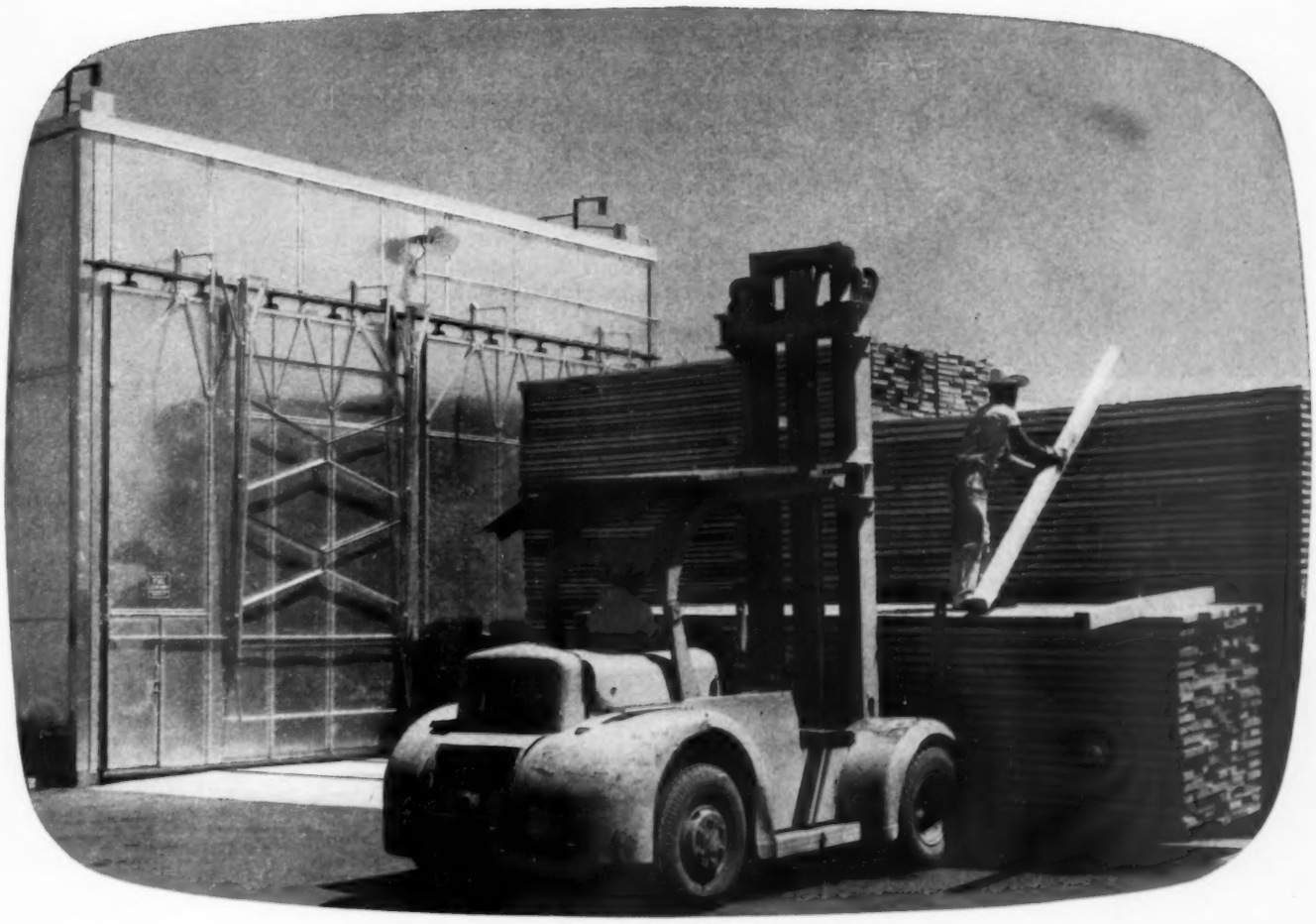
The four categories of finishes to be judged are: (1) bleached or pigmented; (2) oil or oil effect; (3) conventional; (4) special performance, such as polyester. Judges will consider color and appearance, economy and ease of application and choose three entries from each category.

The closing date for entries is May 1, 1960. Finish manufacturers may write the American Walnut Manufacturers Association, 666 Lake Shore Drive, Chicago 11, Ill., for further information and entry panels.

Better Packaging— Wall In A Box

Dancraft Wainscoting, a product of Virginia Plywood Corporation, Danville, Virginia, was successfully introduced through 400 retail outlets east of the Mississippi in this corrugated shipping and merchandising box.

Six prefinished plywood panels, each 30″ high and 48″ wide, are packaged for positive protection, easy handling and take-with sales

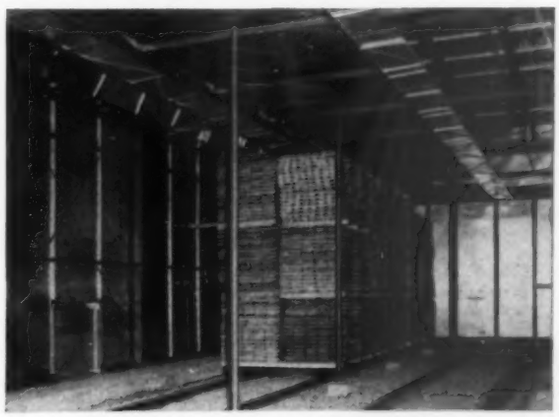


For one source . . . one responsibility—specify STANDARD

• Specify Standard and you eliminate the problems that go with divided responsibility. Standard can design, supply and supervise *complete* dry kiln installations, including direct gas-fired and package kilns. Standard's "one source" service also includes fan systems, heating units, dry kiln doors, kiln trucks, ventilators, controls for fully automatic operation, lumber stackers, power transfer cars, lumber lifts, moisture registers and other equipment.

For buildings alone, count on Standard, too. Standard's insulated aluminum panel buildings are pre-engineered. They save time and prevent unforeseen erection costs when semi-skilled or unskilled labor is supervised by Standard's engineers.

No matter what your dry kiln requirements, write today for complete information. Standard can furnish the entire job . . . and stand squarely behind it with 72 years of engineering-manufacturing specialization in dry kiln production and installation.



Interior view of partially loaded double-track Standard kiln.

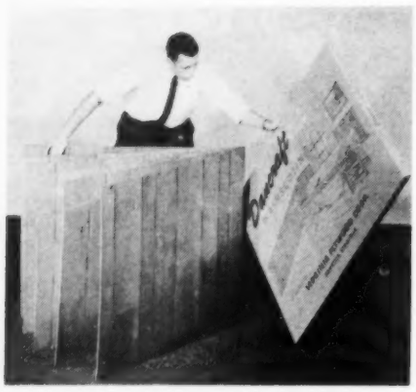
STANDARD DRY KILN COMPANY

P.O BOX 21008 • INDIANAPOLIS 21, INDIANA

WESTERN STATES AREA

Irvington MACHINE WORKS

8205 S. W. Hunziker • Portland 23, Oregon • Mercury 9-2191



in this box designed and produced by Hinde & Dauch Division, West Virginia Pulp and Paper Company, Richmond, Virginia.

Printed in brown and green, the box features a room illustration showing how the product will look installed on the wall. The company packages eight different fine hardwoods (walnut, cherry, oak, birch, elm, butternut, knotty pine, and maple) in the same style package.

Approximate weight of box and contents (60 square feet of paneling) is 45 lbs.

One-Hand-Operated Instrument

Claimed to be the first of its kind, this new Model R-6 lumber moisture meter has been designed to be lightweight, and easily used. It is calibrated for 60 hard and soft woods in the 0-25% range. It can be used for all forms of lumber, plywood and stacks of veneer. It has a penetration field up to 2", using a radio frequency power-loss circuit.

The R-6 weighs less than 3 lbs., is battery operated. It also has a trimmer to permit rebalancing on the spot. Manufacturer is Moisture Register Co., 1510 W. Chestnut St., Alhambra, Calif.

Big Boom In Swim Pools

The big boom in swimming pool construction that the National Swimming Pool Institute expects will materialize in 1960 can mean a lot of plus business for manufacturers and retailers of summer and casual furniture.

"The National Swimming Pool Institute has forecast that around 90,000 pools will be built in 1960. Some 70 to 90% of this number will be residential pools. The balance will be motel, hotel, swim club, municipal, and school pools," says John M. Snow, executive vice-president of the National Association of Furniture Manufacturers.

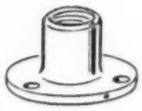
"The new hotels and motels equipped with pools, especially, are excellent prospects for big ticket sales of poolside furniture," he explained. "While a residential pool owner might spend only $200 or so for such furniture, a motel or hotel might make an investment of around $1,000 easily."

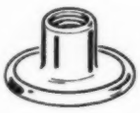
Snow estimates that total volume in summer and casual furniture reached $149,000,000 at wholesale in 1959 and forecast that volume should overtake $164,000,000 in 1960 at wholesale—or $274,000,000 at retail. These are conservative figures, he said, for the aggregate production in all categories of indoor-outdoor furniture, including wrought iron, aluminum, redwood and hardwood, and reed and rattan.

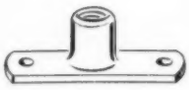
dress 4 sides at 1 time
New FAY & EGAN
FOUR-SIDE PLANER-MATCHER MOULDER
model 969
Mould shapes like these . . . in one operation !
FOUR SIDE DRESSING
DOUBLE SURFACING
TONGUE & GROOVE SHEETING
SHIP LAPPING
DROP SIDING
BEADED SIDING
FLOORING
MOULDINGS
Four-side dressing in one operation
Double surfaces
Capacity to 20" wide, 8" thick and 4" four-side
Ball bearing motors for smooth running, high-speed operation
For flooring, moulding, siding production, this new Model 969 Planer-Matcher-Moulder speeds operations on all four sides at one time!
Sturdy construction, rugged ball bearing motors, four knife safety type round cylinders . . . Top quality features assure low-cost production and years of trouble-free service.
Convenient controls permit easy adjustments. Matcher units may be adjusted even when in operation.
Write Today for complete informative brochure
FAY & EGAN CO.
2023 Eastern Ave., Cincinnati 2, Ohio
World's Oldest Manufacturers of Woodworking Machinery

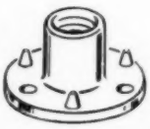
THE FIRST TEENUT was developed by Carr Fastener nearly thirty years ago. Since then, literally hundreds of special-purpose variations have been designed to meet the particular requirements of the woodworking and metalworking industries.

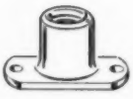
Mounting the standard, pronged Teenut is extremely simple. Drill a hole the same size as the Teenut barrel and hammer in the Teenut so that its prongs penetrate the wood and provide positive anchorage. Counter-boring permits completely flush mounting. Other types of Teenuts are available for anchorage with nails, screws or . . . in metal . . . by spot-welding.











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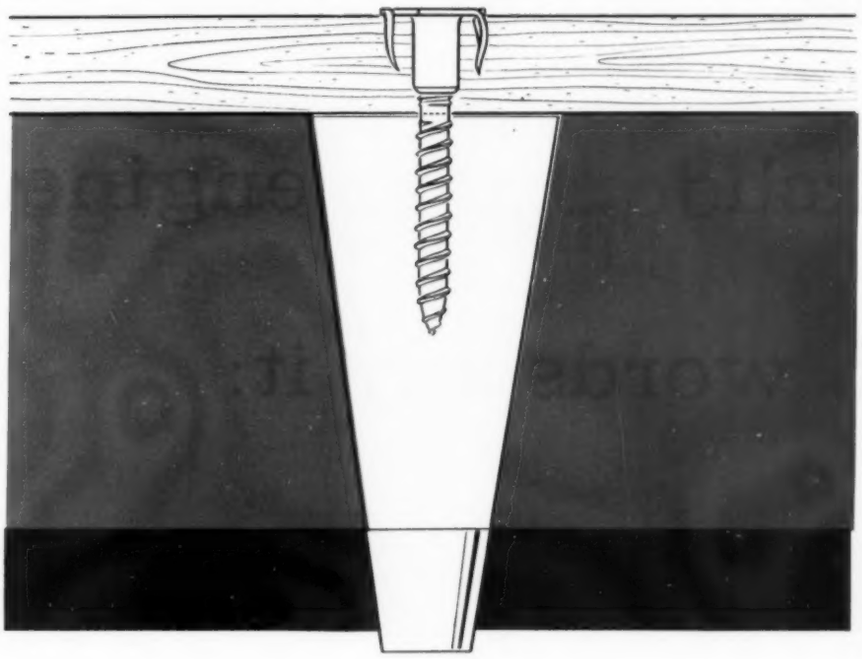

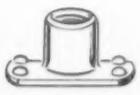

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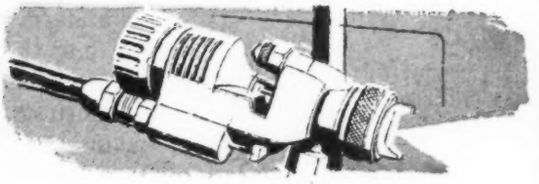

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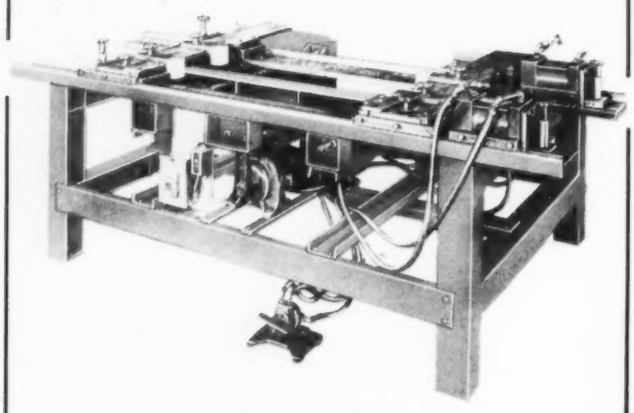

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WORDS AT WORK . . . Selected Quotations

Competition From Our Way of Life

"Today, of course, competition between elements of a given industry, while spirited and often relentless, is perhaps the least important type of competition. Whole industries now stand vulnerable to assault not only from competition outside their own sphere but from changing ways of life, changing technologies, and changing times as well. Those industries which learn to live with these conditions and to have sufficient flexibility to see beyond the confining circle of their immediate horizons are those which will flourish; those which do not will find the going very tough . . .

"What should our companies and our industries do to keep pace with the world as we find it? The best answer I can give is that we must continually re-evaluate our industries not in terms of the basic commodities which they produce but in terms of the basic function they propose to fulfill."—*Crawford H. Greenewalt, president, E. I. duPont de Nemours & Co., before the American Petroleum Institute.*

Challenge For This Decade

"The benefits that we derive from the great new era about to unfold—the 'Golden Sixties' as economists describe it—will be in direct proportion to the vigor, the enthusiasm with which each of us meets his personal responsibilities to the times.

"Let each of us resolve to make a stronger effort to improve our companies, our industry and ourselves in the coming decade. And let us do it with such force, such determination, that others will be inspired to follow our example."—*Thomas J. McHugh, president, Atlantic Lumber Co. and Nat'l. Lumber Mfrs. Ass'n., before the Appalachian Hardwood Manufacturers, Inc.*

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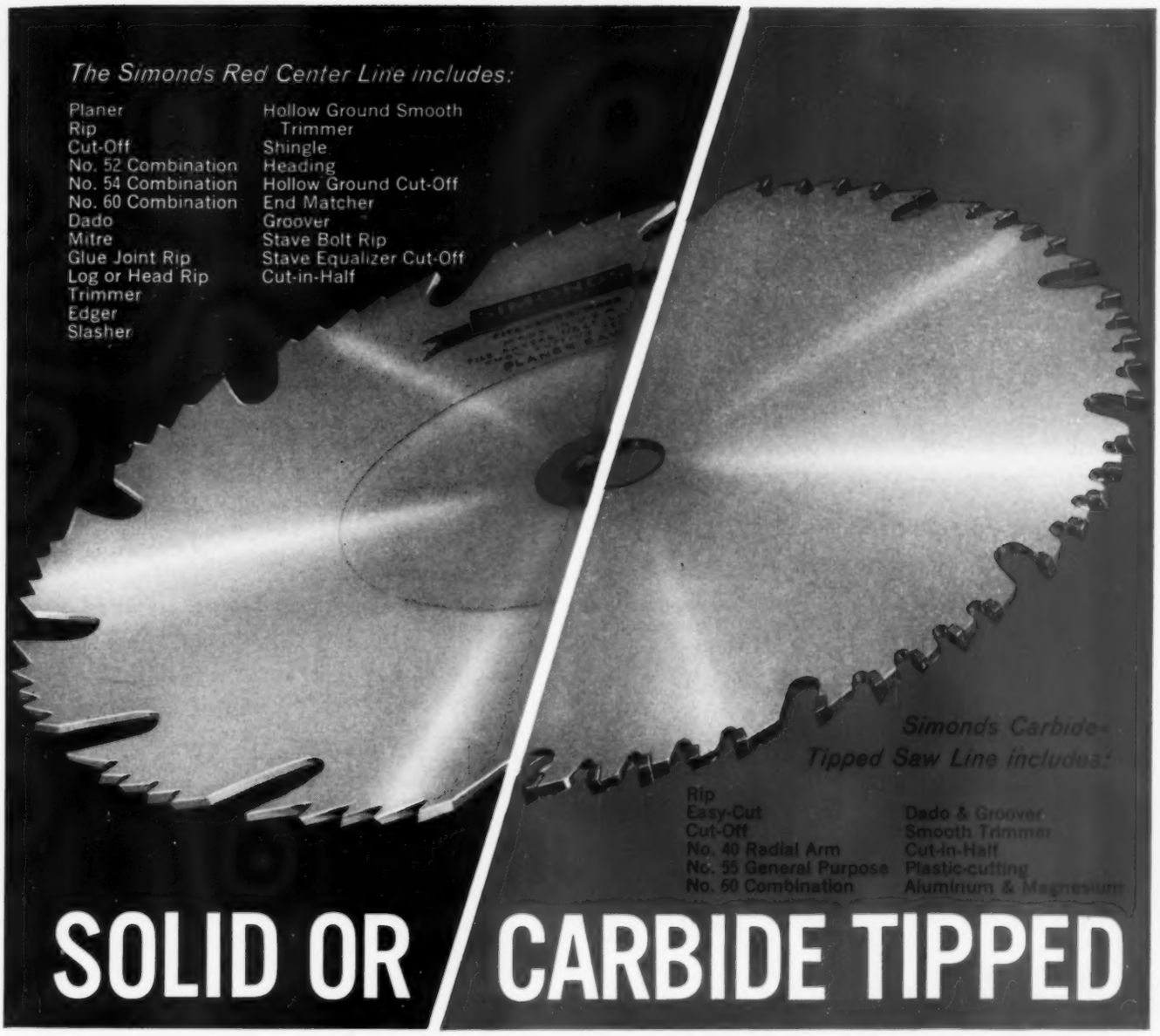

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Or, if you need the special, long-lasting qualities of Carbide Tipped saws, you can't beat Simonds. Made with an extra tough plate steel, Simonds features wear-resistant carbide tips that have identical clearance angles so that every tooth does its share of the work.

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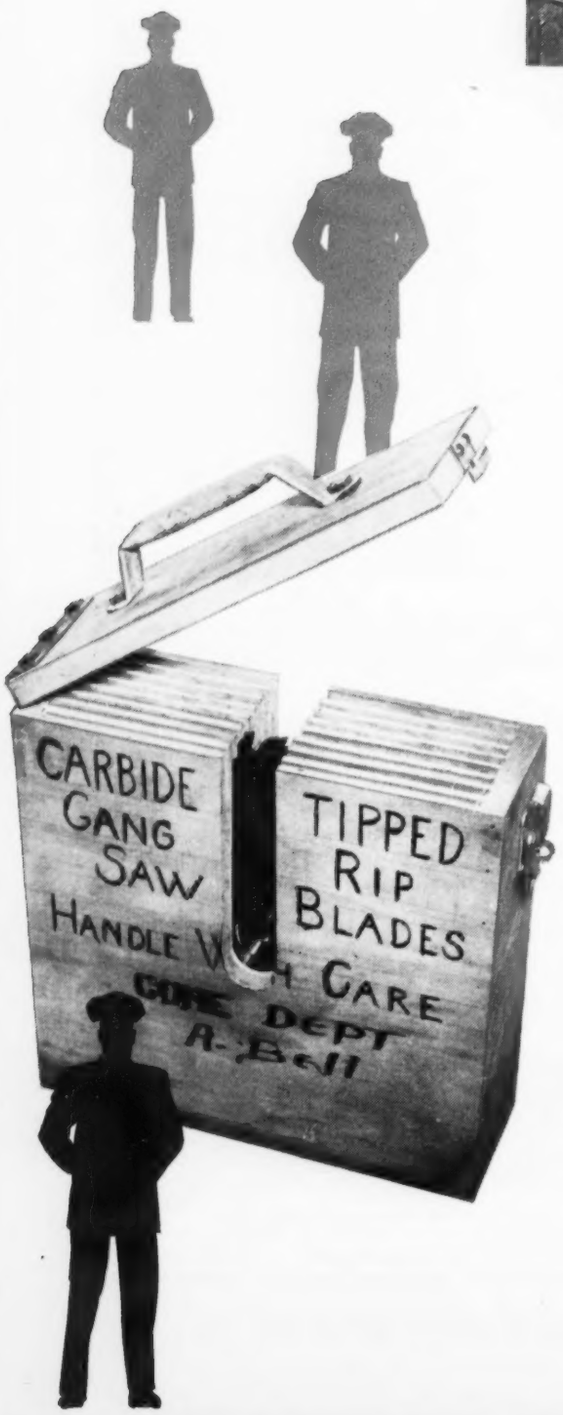
Do not lay carbide tipped saws on the machine bed without proper protection. These saws have proper protection.



PROTECTING YOUR INVESTMENT IN CARBIDES

By Henry I. Ross

Carbide Saw & Tool Engineer
Victory Carbide Saw & Tool Co.

No one gives the key to his safety deposit box to *anyone* he knows, but the plant that allows untrained, uninformed employees to handle carbide cutting tools is almost this careless. Too often former practices which were good enough for handling steel saws, knives and cutters have been carried over in the care and handling of carbide tipped tools.

Carbide tools must have the care necessary or we will have a lot of hidden expense. For example, a man could pick up a set of six saws, standing on their teeth and stacked against each other. As the blades rub and shift five teeth are fractured. Replacing teeth can be done at $2 a tooth; Result: $10. This is an actual case and further inspection of these saws indicated that there were more $2 charges lying around.

We can't blame the worker because he may not have received any particular education in the care and handling of carbides. Possibly he doesn't know anything about carbide itself.

He may even believe that because carbide is a hard material, saws and other tools with carbide tips are durable, almost indestructible.

It is a curious but realistic fact that a machine costing many thousands of dollars—say a straight-line ripsaw which is about $5000—is quite dependent on the quality and efficiency of the work it turns out, on the sharpness and dependability of a small tooth, costing only the $2 mentioned before.

If we wish to carry it further, we can say that the whole woodworking operation as carried on here is dependent on the efficiency of this small $2 tooth. So it all boils down to the cutting edge, and because it is necessary to maintain the cutting quality and ability of this edge, it is necessary to protect it at all times—whether it is of steel or carbide. Protection of the cutting edge will guarantee good cutting, finer finish and longer life between sharpenings. Carelessness in handling immediately reflects just where it hurts—in the purse.

The solution is simple. All we need to do is respect and understand carbide. Handle it carefully, protect it well with such facilities as proper boxes and containers, or shock-absorbing materials which are often furnished by the tool manufacturer.

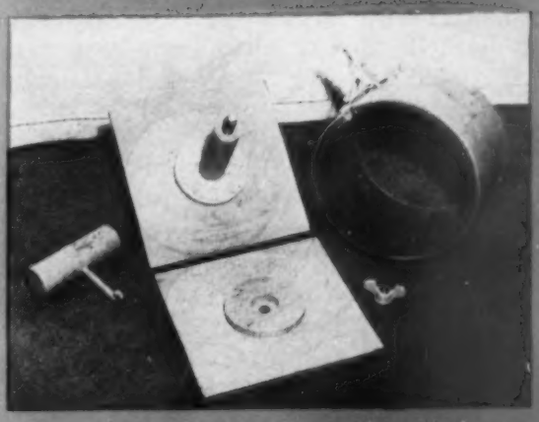
The general practice of most carbide tipped saw and tool manufacturers is to dip the carbide teeth, or cutting edges, into a hot plastic material which, upon cooling, provides a shock-absorbing cushion and protects the carbide cutting edge. Then the saw or cutter is placed between either plywood or hardboard covers. This results in the blade or cutter being held *firmly* in place with a shock-absorbing plastic to protect the carbide. In the case of saws, we can place two or more together in the same carton and ship them with safety.

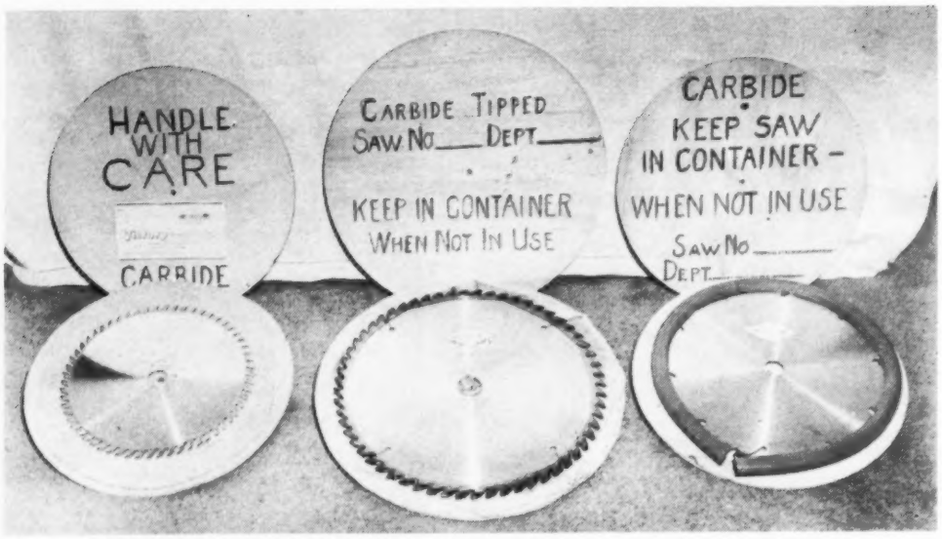
This plastic material should be left on until the tool is installed on the machine, or just before it is actually placed on the arbor. Then it can be stripped off easily with either the fingers or a knife. On knives and cutters the plastic can be

This sling type carrying case can be made for either a jointer or molder head installed with carbide tipped or solid carbide knives. The sling—rubber and canvas—is made slightly longer in length than circumference of the head. The clamp type lock draws the sling ends together and the hooked handle is inserted into the bored, locking hinge.

The addition of square wooden sides equipped with a center locking bolt covered with wooden sleeve to the arbor size of the head completes the carrying case.

Value of the sling is that the head can be supported and held by the operator while it is slipped on the arbor of the machine. The sling can also be used when the head needs to be removed.





Carbide tipped saws are shown with original plywood shipping cases. Center saw's teeth are protected by a plastic coating. Saw blade to right is protected with a split rubber hose wrapped around the teeth.

so removed that it can be replaced to afford protection when knives are not in use, or when the tool needs to be transported or handled.

Some other methods of shipping use corrugated board containers which offer general protection to the teeth but cannot entirely save teeth from direct blows received in shipping. Plywood or hardboard covers with corrugated sheets placed on each side of the saw or cutter have been most effective in minimizing breakage in shipping. Any method of packing where the carbide cutting edges are covered with a shock-absorbing material, floated within a sturdy outside package, is acceptable.

So now we see that careful handling of cutting tools starts with the manufacturer. Then your handling of the saw or tool should continue by keeping it in the original container or one made for this purpose.

The receiving department, stockroom and grinding department should always keep tools in their containers until sent to the machine for installation. This is important because too many times the tool is in its greatest danger when the cutting edges are exposed. Any tool, not packed or protected by a suitable container, is completely vulnerable to damage in handling!

These same containers can become a machine and stock record vehicle. By marking a container with department and machine numbers, along with saw or tool number, a simple means of record keeping can be set up. This method of record keeping can help prevent tools from being used on operations for which they are not suited—a very costly experience sometimes.

By keeping the carbide saws and tools in their own containers, or suitable carrying cases, right from the stockroom, you are setting the pattern for future safe and careful handling by the men at the machines. Proper protection must begin with the receipt of the blade, or tool, and proceed forward from that point.

What about installation at the machine?

Generally the machine operator installs his own cutters, but it may be found that designating the installing to one man will be more efficient. Particularly trained in this phase of the work, he will be more careful and will also be in a better position to judge and record the operating performance of the cutter. This is something each company must decide, however.

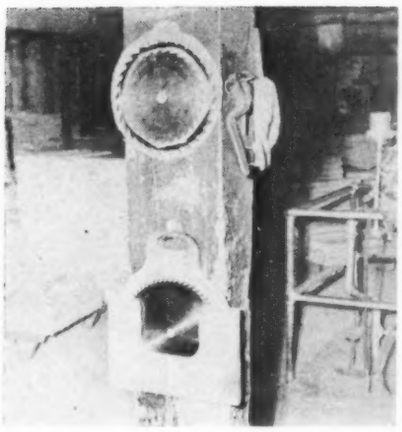
When installing the cutter, saw or tool, great care should be observed at all times. It is best that the protective plastic, rubber hose or any other material be left on until installation is made. I emphasize this because even though carbide tips are protected, they can be fractured by a blow from a hammer or wrench when installing. If necessary make a shield.

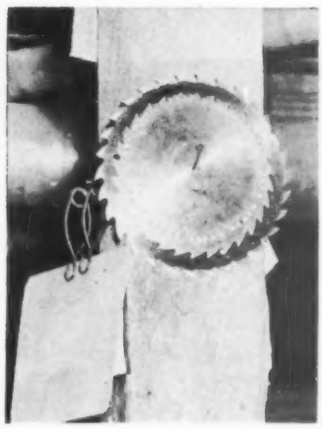
Laying the carbide saw or cutter on the steel table or bed of a machine is not good because this can damage the teeth or edge. Place it on a piece of wood, plywood or corrugated sheet larger than the tool. This will protect the teeth. Or better yet, leave the protective material on until after the tool is on the arbor. Removing the protective material is easy then.

All through this article the emphasis is on leaving the containers or suitable boxes furnished for

Common but improper method (far right) of storing carbide saws. The saw teeth are constantly exposed to damage from every side.

The two carbide saws seen in the other picture are simply protected. A sheet of corrugated was cut out and this affords the saws some protection. Below these saws is a plywood carrying case holding a carbide saw. This is a safer way than the above method.





them. But what about times when tools are taken off for any reason?

When a saw is hung on a nail or peg, first place a shock-absorbing material like a corrugated sheet of a larger diameter than the blade over the peg or nail. Then place the blade on this backing. This method will protect the teeth from chipping.

Then to prevent any other possibility of damaging the teeth, another sheet should be placed over the saw, completely covering the teeth from being struck by another saw or anything else. If another saw is hung over it, the first saw will be protected. The teeth cannot possibly rub against one another. Cover the last blade with a protective cover as mentioned before.

Each cover can be marked, "Carbide–handle with care." If the saw description also appears on the cover, it will be easier to locate a blade when needed.

What about stacking saw blades?

I shudder at this practice, but it may have to be done sometimes. When this happens, however, follow these suggestions:

(1) Place the first saw on a strong wood or plywood base a size larger than the largest blade –which should go first, of course.

(2) Lay corrugated or shock-absorbing material larger than the blade between each blade. Do not allow the teeth to touch one another. Carbide striking carbide is easily damaged.

Again, by keeping the saws in their original containers we reduce the possibility of damage.

What about saw blades standing on end, loose, singly or in groups?

This is the most hazardous practice I've come across! The carbide teeth cannot escape striking other saw teeth when moved. Even though the surface is wood, the teeth can be chipped. There is no protection possible so my recommendation is to discontinue this practice.

Keep blades in original containers. If blades *must* be kept out of containers, make a proper box or shelf arrangement, separating the blades and also protecting the teeth from all sides.

What about knives–carbide tipped or solid carbide?

Every shop has many knives in all sizes, shapes and forms, both in carbide and steel. Since every cutting edge deserves to be protected, it is best to think of suitable protection to all knives in handling, carrying and shipping.

Because carbide knives are ground and sharpened after being installed in the heads, it stands to reason that a box should be made to hold this head and protect the carbide knife edges from any damage. The box will be a natural for handling when the head is not installed on the machine. It can also bear record markings for machine and department. This can be a plywood box or one made of hardboard.

The simplest method for protecting loose knives is to make carrying cases out of wood, plywood or hardboard in the form of a box equipped with a cover and handle. The knives are separated from each other with wooden separators and placed in slots that are just slightly larger than the thickness of the knives. This will hold them snugly. Keeping knives in a cabinet or locker provides a means of storing them safely in pairs or sets. They are kept separate from other knives and handling is minimized.

As a further protection to the carbide cutting edge, whether sharpened or dull, the application of a plastic coating or a paper or cloth tape on and over the cutting edge will be helpful. I mention dull knives because they are the most vulnerable. Because they are dull, it is easy to handle them with less care. Remember it is more costly to grind out

This combination cabinet holds sets of loose knives on slanted shelving and also heads equipped with knives. This cabinet could be improved if shelves were equipped with wooden separators. Then there is no chance for knives to strike one another.

Here is a carrying case to hold sticker knives. A wooden holder in the bottom is grooved to hold the knives by the slots in the body. Grooves are spaced so that knives are separated. Knives outside the tray are held to boards with masking tape. In center is a carbide router bit whose cutting edge is protected with masking tape.

Coming Next Month . . .

More material on how to store and handle carbide cutting tools. Next month's article will be a short discussion on how to make some of the cases described in this article. Diagrams will be included showing exact specifications and other details of construction.

a knick or chip in a carbide knife than it is to sharpen it. You may lose many months of cutting life from the knives due to costly, excessive grinding which may be necessary to grind out the knicks or chips.

There are many methods of protecting knives and heads, but all should follow the simple, basic rule of protecting the cutting edges. By providing protection of a box or case, and separating the knives from one another, the worker's safety will be increased and the company will save many dollars by reducing replacement or service costs.

What about carbide tipped router bits and form cutters?

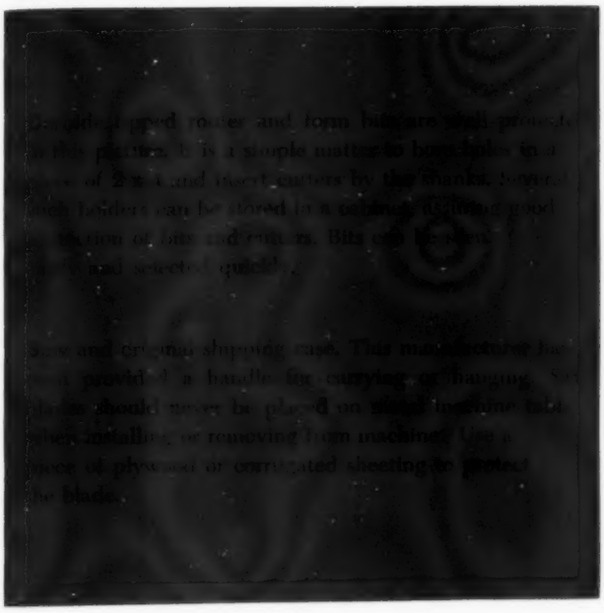
When carbide tipped router bits and form bits, without any protection to the cutting edges, are allowed to roll around in boxes with other tools, they are prime targets for damage to the carbide. It is a simple matter to bore holes of a sufficient diameter in a piece of 2 x 4. The bits can then be held by the shanks. The next step is to enclose this base with sides and a cover, furnish a handle and you have a very economical carrying and shipping case.

Several such holders for bits can be stored in a cabinet. They are well protected and selection of a bit is easy.

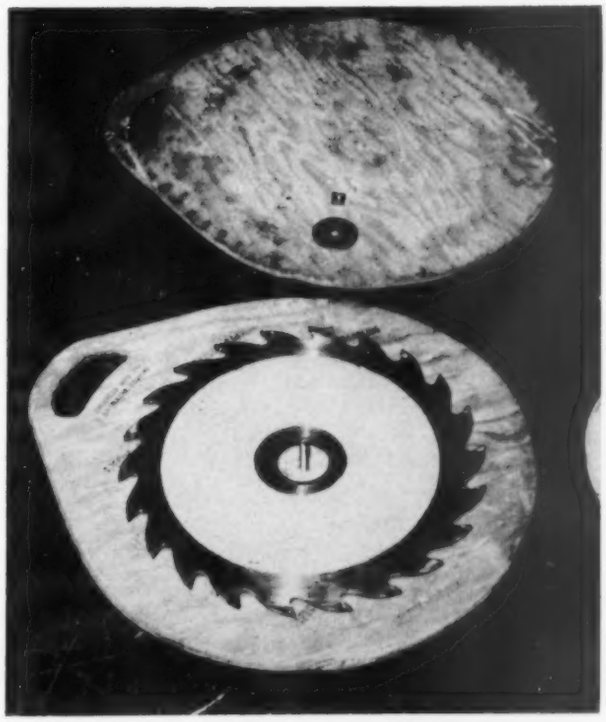
What about returning for sharpening and service?

When a saw or cutter is dull, place it in the original container or carrying case and send it back to your grinder. If the case is not available, the knives should be individually and completely wrapped in a shock-absorbing, protective material like cotton, corrugated or any other cushioning material to protect the cutting edge. Then wrap the whole batch together and float pack them in the center of a large wooden or corrugated box. To float pack means to completely surround the bundle of knives with loose packing like crumpled paper, excelsior, wood shavings or sawdust. This method absorbs the rough handling shocks which occur during transit.

Large knives—those up to 50″ in length—come

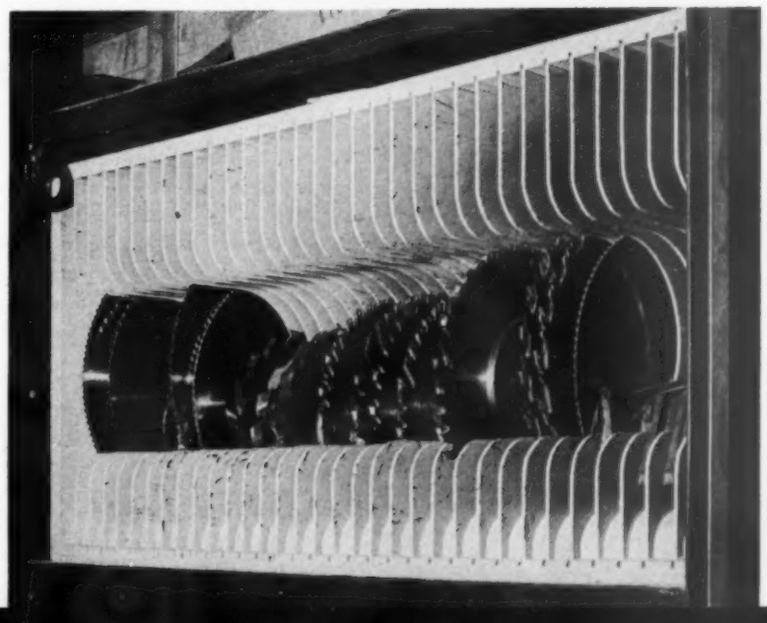


from the manufacturer carefully packed separately in shock-absorbing materials and in a strong wooden box. Since these knives are immediately installed in the machine and remain there for years, due to the long cutting life of carbide, the problem of storage is not encountered. It is during the installing that care must be exercised to protect the cutting edges. In the many installations which I have seen, I have never seen a knife harmed! These knives have been giving satisfactory and economical planing for years with sensible, ordinary care on the part of the operators.



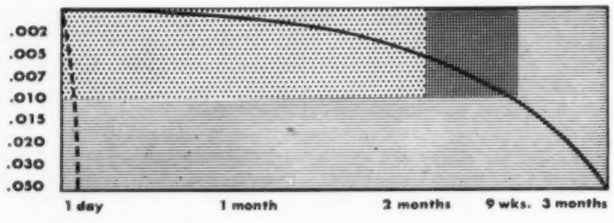
When is a cutting edge dull?

Now the question arises: when can you tell whether a saw, knife or cutter is dull? With steel tools it was much easier to judge because the cutting edge rounded off so fast. A rubbing or burning action started and cut pieces showed that it was time to change. Carbide, due to its long cutting life between sharpenings, can be neglected and may still give a fairly decent cut even though it is in reality dull and should be sharpened.



A good storage box for a variety of saw blades. Each blade has a separate niche. Box is made in such a way that blades do not touch one another at all.

The first and simplest way to check a cutting edge is to feel it with your finger or finger nail. A slight drag of the cutting edge on your skin usually indicates a fair degree of sharpness, but in order for this to be feasible, practice and experience with sharp and dull blades will be necessary. However, it has been found through experience that it is best to set up a schedule of cutting hours. This can be done with the cooperation of the operator, supervisor and grinding department. The saw or cutter should be taken off when time is up for its run. Careful attention here can mean a great saving. The Sharpness Curve Graph will give you a picture of such a program. Incidentally, I inserted a comparison of cutting life with a steel saw blade.



Indicates safe normal cutting period.

Indicates period saw should be taken off for sharpening. Indicates period of greatest wear and dulling of teeth, necessitating up to .050 removal of carbide to sharpen.

This is also the period when dull tool pressure build-up will be sufficient to chip or even fracture the carbide cutting edge or tooth.

The solid line indicates the carbide saw sharpness curve. The broken line indicates steel saw sharpness curve. Peak sharpness.

This graph shows the amount of metal removal necessary to sharpen a tool as compared with the operational life as measured by weeks and months. The graph has been prepared from operating information on a 24-tooth carbide tipped ripsaw blade.

Normal good cutting wear of carbide saw teeth is anywhere from .005-.010, giving on operational cutting life of from 8-9 weeks. Compared with the steel saw, it is easy to see the savings possible with a carbide tipped saw blade.

It is poor economy to operate the carbide saw blade after 8-9 weeks. The carbide edge will dull more rapidly, tool pressure buildup can cause tooth breakage, and it is necessary to grind up to .050 of the carbide tooth when sharpening.

Basing this information on eight weeks of operation at .010 carbide removal, it is easily seen that having to grind .050 carbide for just two weeks of forced operation will reduce the over-all cutting life of a carbide saw by eight months—32 weeks!

SAVE MONEY BY SETTING UP CUTTING LIFE SCHEDULES!

How can we establish cutting life practices?

After establishing a cutting life schedule, the next step is the case of the carbide cutting teeth or knives when saws or cutters are in operation. I shall not go into machinery practices and operation which you probably know more about than I do, but may I remind you that carbide will cut anything, including nails. Trying to find out what it will cut before tooth breakage occurs is an expensive experiment. Complete retipping of circular saw blades can cost from $50 to $200 a blade.

Do not push carbide too far.

We know that a clean saw cuts freely and easily but trouble can start when it builds up with pitch or gum. When using steel saw blades, which need sharpening every few hours, the pitch buildup can be cleaned off at the time of sharpening and so is no problem. With a carbide saw which operated continuously for many days or months, the buildup of pitch or gum can be a problem. It has to be removed if the teeth are to do their best and if side clearances are to be maintained. Pitch on the sides can cause burning. Many times this is mistaken as a sign that the blade is dull when actually it is the pitch buildup that is burning by friction. This burning can heat up the steel body sufficiently to disturb the tension.

Set up a practice to clean the blade on the arbor, if possible, at least once a day, or at the end of each shift. Household ammonia, kerosene, naphtha, or trisodium phosphate solutions will remove pitch or resin buildup when cutting softwoods. The buildup from hardwoods can be removed with hot soapy water or lacquer thinner. Some of you have pet methods which are successful. Use them to keep your saws and cutters operating freely, cutting smoother and also gaining longer cutting life between sharpenings. Mechanical cleaning with chisels, etc., can damage carbide.

When sending the blade back for sharpening or service, do not clean off the pitch or gum. Send it back just as taken off the machine. When the service men see the condition of the blade and the formation of the buildup, they can better judge how the blade has been performing, and what may be necessary to improve or maintain its good performance. A tag, or even a written report, sent along telling about the saw's operation should be attached to the blade. This is especially true if the blade has been involved in an accident. Then the man grinding it can best determine what needs to be done to service it properly.

Remember the saw or cutter must be placed in its own container or holder so it will be protected at all times.

Keeping knives in a cabinet or locker provides a way for storing them in sets or pairs. Because shelves and trays are slanted, operator can recognize knives needed at a glance.

What about worker safety and carbides?

By making provisions and following instructions in the care and handling of carbide tipped saws, knives and cutters, a big and material gain is passed on to the man handling and working with carbide tools. First, by keeping the saws, cutters and knives in their carrying cases or boxes to protect them, he is also protecting himself from injury.

Second, by caring for the carbide tools furnished him, he is assured that he is using the most modern cutting tools available to him, which directly is putting money into his pocket in better and greater production.

Third, it puts his company into a better selling position, due to lower operating costs, to meet the encroaching competition of other materials trying to replace wood and its by-products.

It is a good idea to advise the men handling these tools, which are precision built, of their costs, and to always handle them with care. A tool should be kept in its container when not in use; and at all times whether it is sharp or dull, give it the care that a good tool deserves.

Follow the good practices for handling carbide tipped saws, knives, cutters & tools as set forth in this article. Some companies are posting notices at the machines advising that they are equipped with carbide tipped tools, their costs, and dos and don'ts on care, handling and operation.

A few of these posters and their content are included in this article. Many companies have adapted them specifically to their operations.

All cutting tools deserve care.

If cutting edge damage, caused by mishandling of tools, were visible to the eye as it is under a strong magnifying lens, tool care would take on a very important aspect. This applies to steel tools as well as carbide tools. The problem of careless habits in the handling of tools is never as prominent

DO NOT

lay the blade or cutter on a metal surface.
allow one blade or cutter edge to rub with another blade or cutter.
store the blade or cutter where it can be damaged.
run the blade or cutter when there is wood burning,—stop the machine and check for sharpness, machine alignment or slivers wedged against the blades.
fail to clean off dirt, sawdust or burrs from collars and blades when installing a blade or cutter.
fail to report improper alignment or functioning of the machine.

DO

Handle the blades or cutters as you would a crate of eggs.
Remove gum and dirt from the blades frequently.
Replace the blades or cutters just before they need sharpening.
Keep your machine well aligned and adjusted.
Inspect the work and blades or cutters frequently for signs of dullness or improper running.
Return dull tools for sharpening immediately.
Use proper tool containers as recommended.
Remove all oil and film from blade before placing in service.

The Carbide you are using on this machine is expensive. Handle it carefully.
Carbide tools for this machine cost:
$ each
$ per machine

DO'S and DON'Ts FOR BEST RESULTS

1—Clean saw whenever it begins to accumulate gum. Household ammonia is excellent for removing pitch from the sides of Carbide Tipped Saws.
2—Handle with care.
3—Keep in original container when not in use.
4—Avoid contact with machine when mounting or removing from arbor.
5—Periodically check condition of tips.
6—Never continue to run a damaged or dull saw.
7—Keep saw arbor, bearings and collars in perfect condition at all times.
8—Use supporting collars of largest possible diameter.
9—Be certain of sufficient power to maintain constant saw speed.
10—Keep saw sharp!

in our thinking as it should be. Both the damage and the cost are usually hidden factors.

Education on tool care is no more difficult than education about safety. Production-wise it will eliminate many lost hours, result in better quality work, eliminate second operations and serious errors due to tool breakage or tool deflection.

Cost-wise it means direct savings in repair charges, longer total life of the tool, more production through less non-productive downtime in changing tools, and over-all, a high reduction in cost.

If you sincerely wish to protect your investment in carbides, you will insist that employees be instructed and follow the instructions on the care and handling of carbides. □

Thank you!

Thank you for the loan of carbide carrying and shipping cases, permission to photograph machines in preparation for this article and other courtesies which the following firms extended: Roddis Plywood Corp., Marshfield, Wis., and to Harold Zajichek and Bob Bolon, engineers. Edison Wood Products Co., New London, Wis., Al Waterstradt, superintendent. To these men and others we express our appreciation. They have helped to make this article possible.

For You! Literature of Special Interest To All Carbide Tool Users

As soon as Mr. Ross began working with our editors on this article, we wrote to all manufacturers of carbide cutting tools. This list does not include all manufacturers — though we can easily supply the company names and addresses for you — but it does include those companies who sent samples of literature which will be of particular interest to you.

You may write them directly, or use the convenient Action Card inside the back cover.

The Blade Manufacturing Company
909 W. Third Ave., Columbus 8, Ohio
Catalog sheets listing types of saws and their applications. Illustrated.
Use postpaid card. Circle No 1

Carbide Tools, Inc.
4005 Brookpark Rd., Cleveland 34, O.
A very complete catalog on all types of tungsten carbide tipped cutting tools manufactured by this firm. Well illustrated.
Use postpaid card. Circle No. 2

Cascade Saw & Machinery
P. O. Box 179, Chehalis, Washington
A catalog on saws is available which describes specific applications and illustrates saws for these industries; plywood, hardboard, shingles, furniture, box, sash and door and cabinetwork. The company's saw repair service is also described.
Use postpaid card Circle No. 3

Deluxe Saw & Tool Co.
500 E. Main St., Louisville, Ky.
This firm has a sheet from its Technical Sales Manual. The sheet explains tip replacements and how to obtain the most from "Karbide King" blades.
Use postpaid card. Circle No. 4

Heinemann Saw Corporation
2017 Navarre Rd., S.W., Canton, O.
"Heinemann Saws," Catalog #24, is a well illustrated piece on the firm's complete line.
Use postpaid card Circle No. 5

R. Hoe & Co., Inc.
5569 Northwest Highway, Chicago 30, Ill.
An excellent catalog with much helpful information. Special mention should be made of page 20 which carries a listing: "Care and Maintenance of Hoe Carbide Tipped Cutting Tools."
Use postpaid card. Circle No. 6

Huther Brothers Saw Mfg. Co.
1290 University Ave., Rochester, N.Y.
Catalog CT-100 gives information on the care and use of carbides. It also includes instruction on grinding and sharpening. Very good.
Use postpaid card. Circle No. 7

Mechanics Lumber Co., Inc.
55-11 Queens Blvd., Woodside, N.Y.
Catalog sheet, "Why Melco Carbide?" illustrates the firm's products.
Use postpaid card. Circle No. 8

Metallurgical Products Department
General Electric Co., Box 237, Roosevelt Park, Detroit 32, Mich.
This large company has available a number of Technical Reports. These include case histories, other application-type stories, and information on ordering carbide tipped cutters.
Use postpaid codd. Circle No. 9

Motch & Merryweather Machinery Co.
1250 E. 22nd St., Cleveland 17, O.
This company handles the radialloy-tipped saw blades. Literature is limited to price lists and specifications.
Use postpaid card. Circle No. 10

North American Products Corp.
P. O. Box 291, Jasper, Ind.
The booklet, "Carbide Tipped Magni-Sharp Carbisaws," has a number of pages devoted to helpful information on selection of tools, applicational uses and general suggestions. Mr. Arthur R. Segal, president of the company, is an authority on carbides. (See WOOD WORKING DIGEST, February, 1955.)
Use postpaid card. Circle No. 11

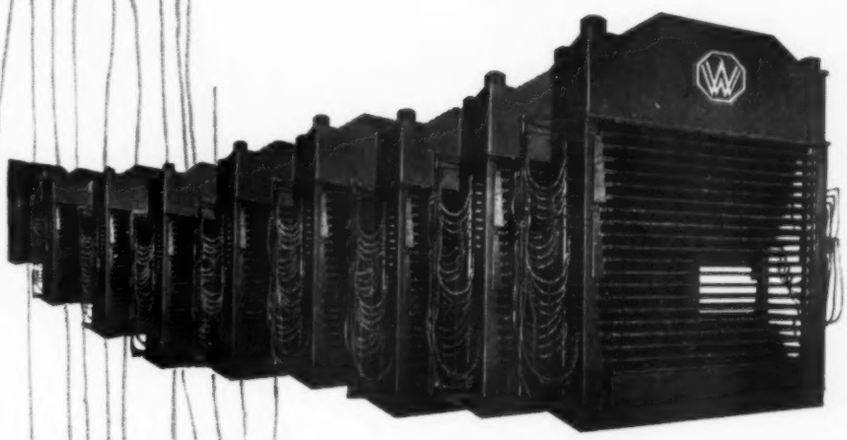
H. K. Porter Co., Inc.
Philadelphia 35, Pennsylvania
"Disston Carbide Tipped Saws," is a well-illustrated catalog which, in addition to listing and describing types of saws, also includes a section on the care and handling of carbide tipped saws.
Use postpaid card. Circle No. 12

Saw & Knife Specialty Co., Inc.
6526 Carnegie Ave., Cleveland 3, Ohio
This firm provides Masonite covers for all saws, but comments that often users return the saws for sharpening without the container! A brochure from this company includes helpful information on how to use a carbide saw — suggestions for more efficient performance of the tool.
Use postpaid card. Circle No. 13

Simonds Saw and Steel Company
Fitchburg, Mass.
This company has a very fine, pocket-size booklet, "How to Sharpen and Care for Carbide Tipped Saws." This is very well organized and illustrated.
Use postpaid card. Circle No. 14

Virginia Machine Tool Co.
Bassett, Virginia
This company has catalog sheets available on: carbide tipped saws — storage, handling, operation and maintenance.
Use postpaid card. Circle No. 15

When you count presses producing DOUGLAS FIR PLYWOOD



you count more WILLIAMS-WHITE presses

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When you select the leading example of multiple-opening hot plate presses, you are buying maximum production with a minimum of down-time.

For illustrated details about Williams-White custom-built presses, write today for Bulletin Number 200-A. It's free.

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the measure of Performance Reliability for more than a century

SALES AGENTS: Portland, Oregon: Allied Northwest Machine Tool Corp.; **Seattle:** Perine Machinery & Supply Co., Inc.

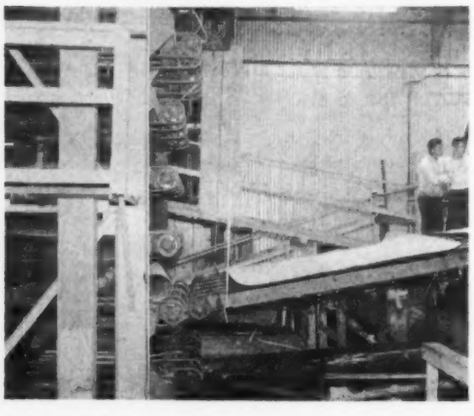
Operator works at console of 10′ barker.

Georgia-Pacific Pairs Up Plywood Plants

Sheathing and sanded plywood mills are teamed up for better log utilization.

Kimwood overhead lathe charger serves the 8′ lathe.

Automatic tipples on 8′ and 10′ veneer trays.



by Bert Goldrath
West Coast Editor

"Two hearts that beat as one" were never better synchronized than the two new fir plywood mills that operate side by side at Samoa, Calif., under the Georgia-Pacific insigne. The mills' combined output is 13,000,000 square feet a month on a ⅜" basis. Placed in full operation on New Year's Day, 1959, the plants bring to nine the number of plywood-producing facilities operated by the company in the West and South, not counting two veneer plants. The total plywood capacity of all G-P plants reaches the impressive figure of 675,000,000 square feet a year. That's only part of the output of the 8000-employee organization headed by R. B. Pamplin at Portland, Ore.

Built to supply Southern California warehouses, the two Samoa mills are actually under one roof covering seven acres. Four hundred men are employed in the dual operation, working three shifts five days a week.

The original plywood sheathing mill was built in 1958 in only 47 working days. The reason for building a sanded plywood plant right alongside the sheathing operation was to obtain maximum utilization of raw materials. The two mills now share the same building but they are treated as two separate operations. Veneers are separated at the driers, since even low grade logs yield up a certain amount of high grade veneer. Formerly this top-quality veneer was going into a less expensive plywood which was really going out over grade. From the standpoint of economics

as well as conservation, this was not the best utilization of materials.

With the establishment of the side-by-side plywood mills the picture is different. The company believes it has one of the most productive, best-equipped and most fully-automated plywood operations in the nation.

Logs come in by truck and rail and are either cold-decked or stored in rafts in Humboldt Bay. An L&M chain pond saw cuts logs into 8′ and 10′ blocks. Blocks of 4′ will also be cut for a new 4′ core lathe which is scheduled for early installation. Thus there will be three lines of flow at the starting end. Blocks now enter the plant on a new two-chain log haul.

The 10′ Eureka Boilerworks barker has been geared up to handle 350 to 400 blocks in an eight-hour shift. Previous capacity was 200 to 250 blocks. The Barker has a two-speed motor. The 10′ lathe is charged by a Globe elevator charger. A Kimwood overhead charger feeds the 8′ lathe and a Kimwood will also be installed on the core lathe. Thicknesses being peeled are 1/10″, 1/8″, and 3/16″; the lathe can also peel 1/6″, 1/7″, 1/12″ and 1/4″. When the core lathe is in operation all three lathes will be Bamford-Premiers. They are driven with a Kirk-Hillman lathe drive motor generator set with variable speed. Automatic electric eye spotters are by Kimwood.

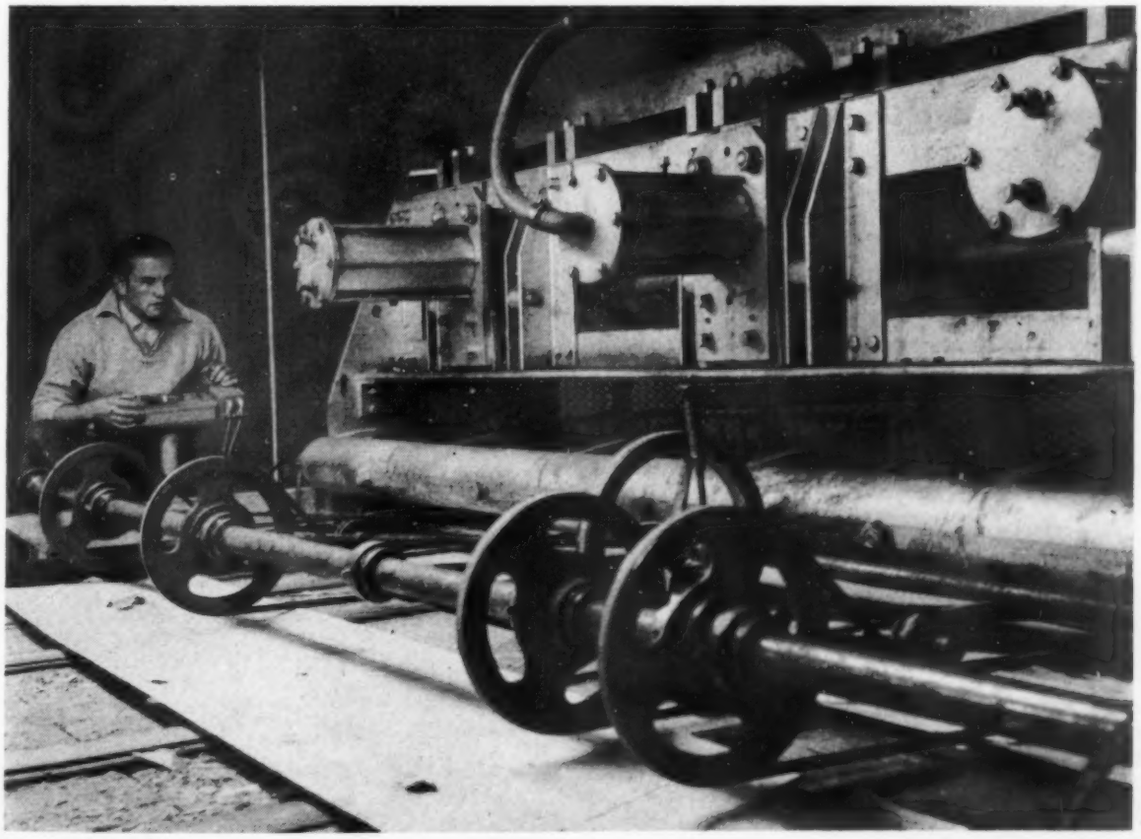
On the deck peeled cores are shunted off for transfer to the stud mill.

Automatic tipples on the 8′ and 10′ lathes transfer the veneer from tray to tray. Air pressure actuates limit switches that cut the veneer. There are two Elliott Bay clippers on each tray system and there will be another for the core lathe. An L&M fishtail saw trims veneer for salvage purposes (when one end of the veneer is salvageable). Four offbearers work off each clipper.

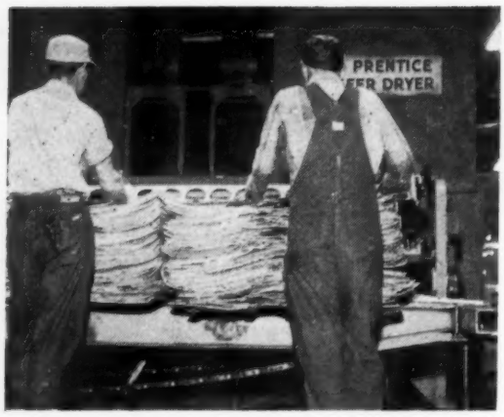
The dual mill is producing plywood panels from 5x10 feet down to 3x6 feet, in ¼″, ⅜″, ½″, ⅝″, ¾″, 1″ and 1⅛″ thicknesses. Pressing is by both cold and hot press methods.

From the clippers the veneer feeds into three veneer driers: one 18-section, six-line; one 12-section, five-line, and one 18-section, five-line. They are charged by Swede automatic feeders. Driers are Prentice, gas-fired. The two larger driers are twin-zone and the smallest is a single-zone. The twin-zone driers have two fire chambers for better heat control. Veneer can thus be run in colder on the green end and the heat can be increased at the outfeed end. Too much heat at the green end would case-harden the veneer.

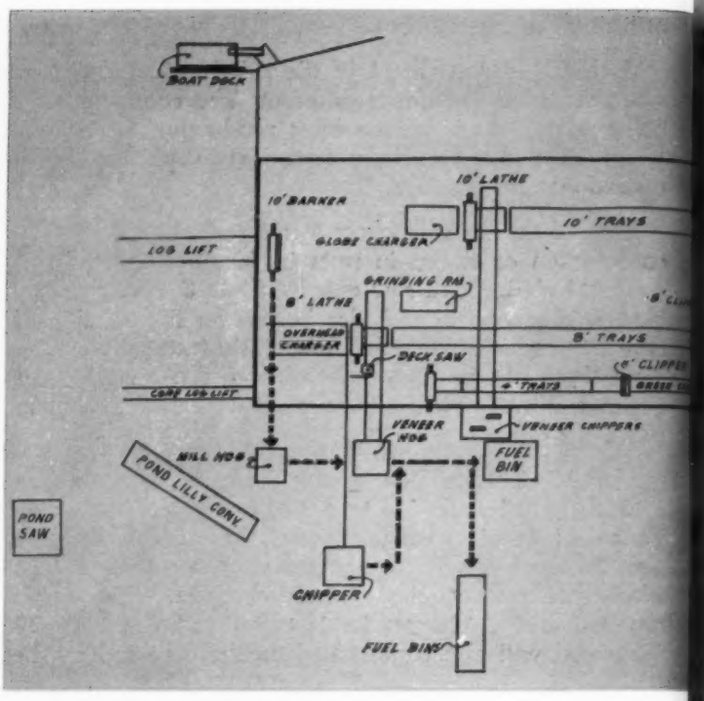
Moisture content is reduced in the driers to 6%. It is checked with a hand moisture meter on the 12-5 and 18-6 driers, and with a Laucks Sentry automatic moisture detector on the 18-5 drier. The

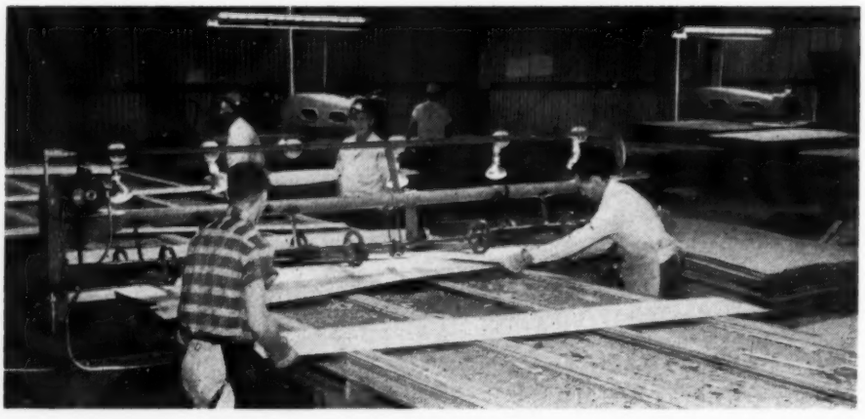


Final setup calls for five clippers like this Elliott-Bay.

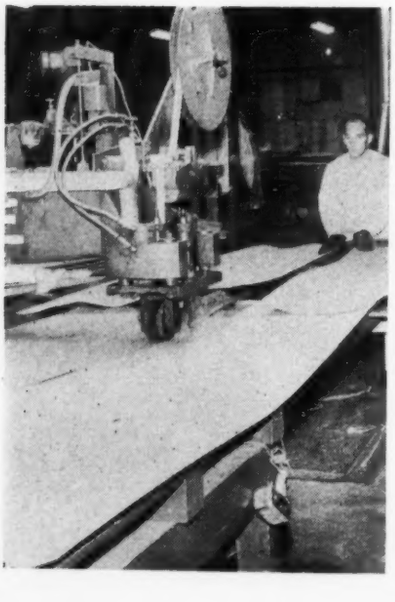


Prentice gas-fired driers have automatic Swede feeders.



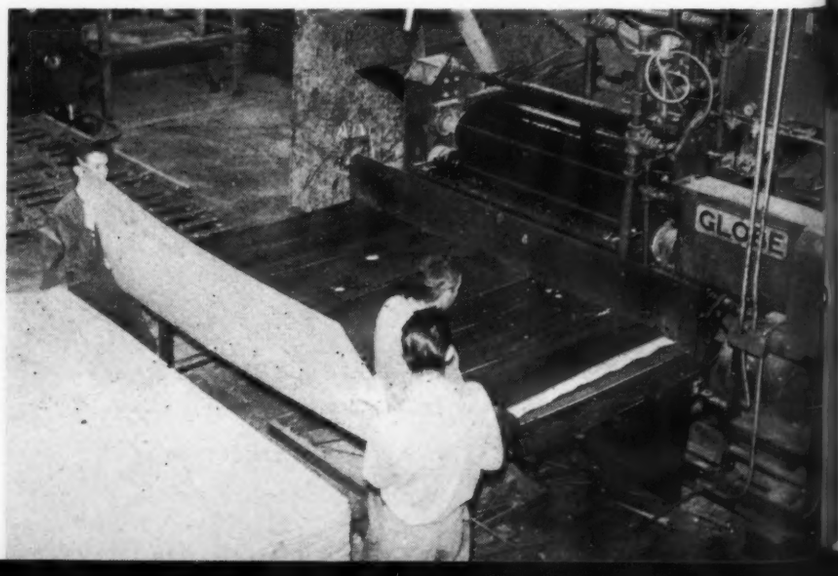


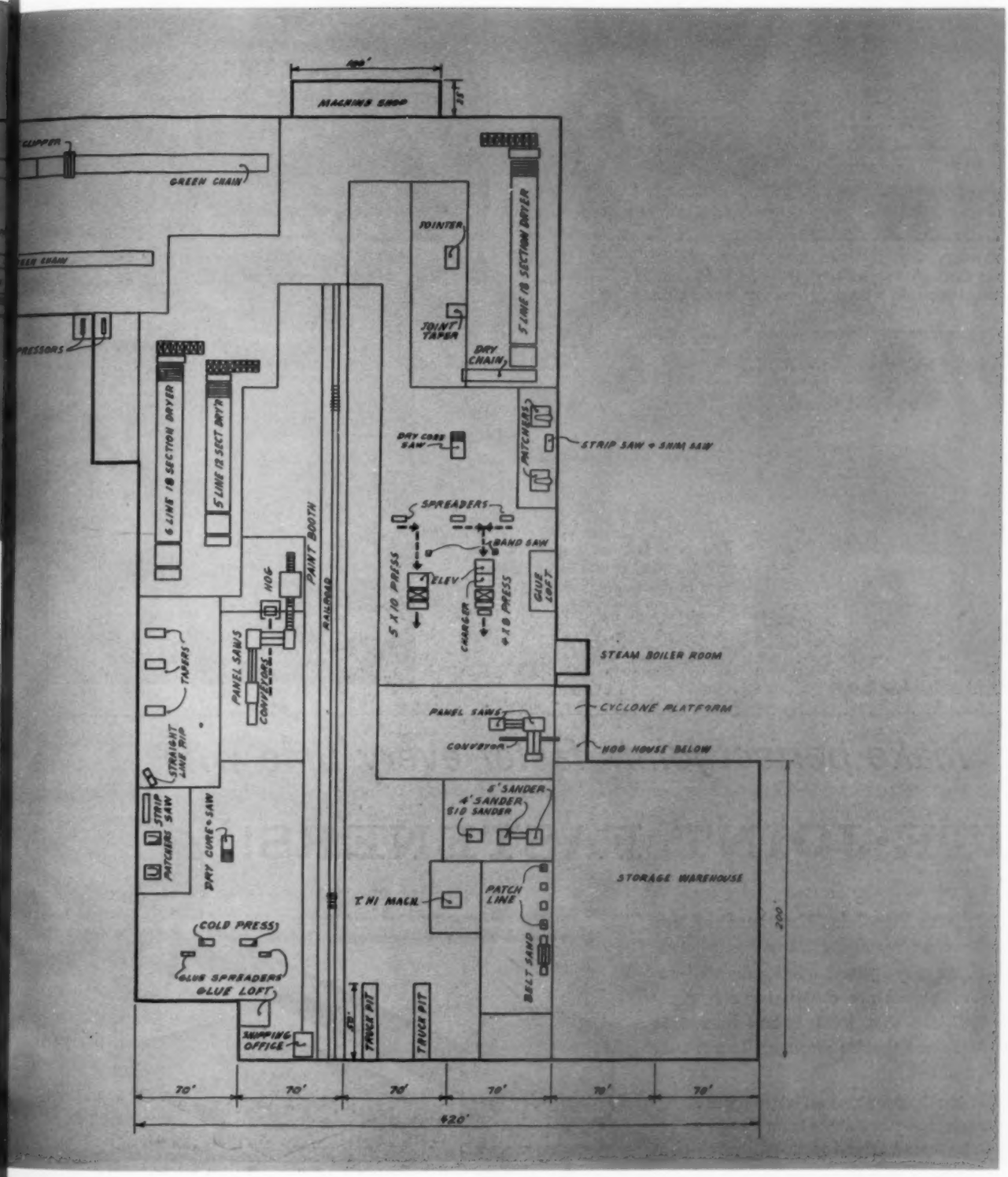
Dried veneer is checked for moisture content by Laucks meter.



Globe machine tapes veneer backs or faces.

Using sheet-turning method (below), veneer is run through Globe glue spreader.



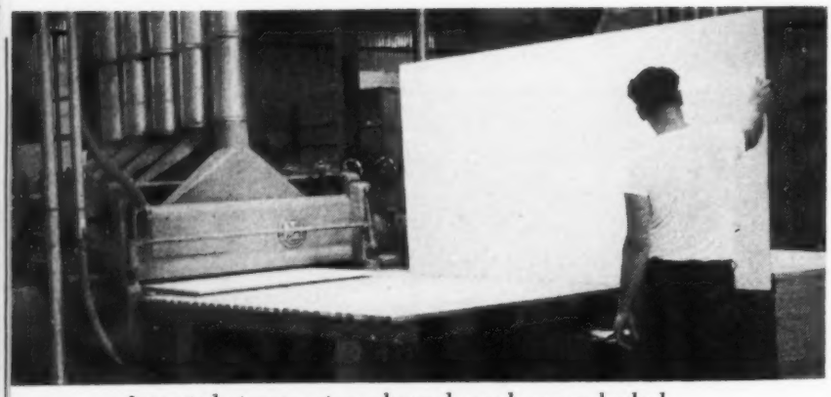


Laucks device automatically ejects a colored marker when m.c. is off.

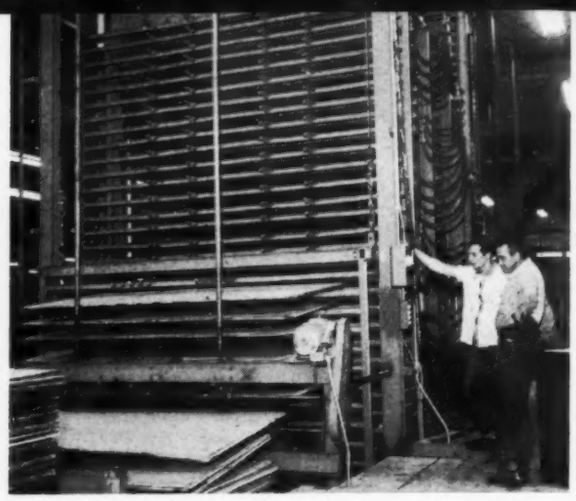
The great bulk of the inplant materials handling job is taken care of by a fleet of propane-powered Clark fork lift trucks, of which two are 6,000 lb. capacity and eight will carry 5,000 lbs.

It is at this point that the flow of veneer divides into material for sheathing and sanded plywood. Veneer moves from the 18-5 drier onto 41′ dry chain before going to the jointers, tapers, saws and hot presses. On the other side, output of the two driers goes to grading tables where there are three men offbearing from the 12-5 drier and four men from the 18-6. On the 18-5 dry chain there is one man to grade and four to offbear.

Two band-type core saws by Salem Iron Works automatically cut a 100″ load of veneer in one cut and return for another cut. Veneer for cores is cut to 50″ width to allow for trimming. Veneer for backs and faces is processed through two Globe



Inspected at every step, plywood panels are rechecked after running through Yates-American sander. (Taken in sequence, this operation would be the last one on the page.)



A 24-opening Williams-White hot press is used by Georgia-Pacific for 4' x 8' panels.

Panels are run through the Prentice automatic skinner and cutoff saws.

The glue loft—an important part of any plywood operation—is shown here in this general view.

Make perfect joints faster every time with

TITE-JOINT FASTENERS!®

Only with Tite-Joint Fasteners can you get perfect matching joints every time, even on complicated wood assemblies. Mating pieces are drawn together *internally* so that joints won't buckle or twist — and they're stronger than if they were glued.

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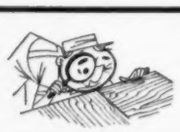
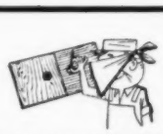
Now used more than any other wood fastener for joining two pieces of plastic laminated plywood.

TIGHTER JOINTS Every pound of force exerted on the locking lever applies approximately 500 pounds of clamping pressure at the joint.



PERFECT JOINTS Internal clamping prevents buckling, assures smooth, flush joints. Permits close fit to other surfaces.

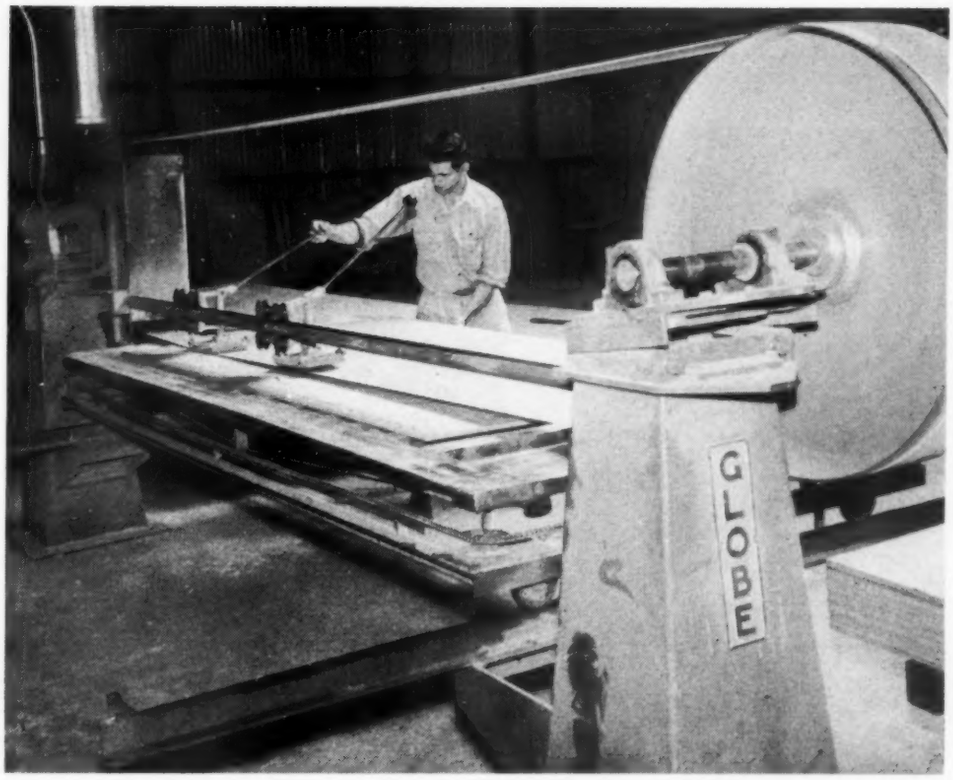
SPEEDY INSTALLATION Joints can be made faster because of exclusive Tite-Joint draw bolt design. Easy-to-follow directions supplied.



EASILY DISASSEMBLED Pieces joined with Tite-Joint Fasteners can be quickly and easily taken apart to facilitate shipping.

KV FIXTURES

KNAPE & VOGT MANUFACTURING COMPANY
Grand Rapids, Michigan



Globe belt sander puts finishing touch on plywood sheets. After this operation, the panels are strapped onto trucks in palletized units. Trucks drive in to special built-in pit (see flow chart, pages 38-39).

tape machines and two combined jointer-tape machines by Rothrock.

Patching operations in both lines are handled by five Raimann patchers, of which two are equipped with pre-loaders. The operator works off one load and has another in reserve. When he finishes a load he drops a hydraulic scissors lift down to pick up the stored load.

Interior grade veneer goes through two Globe glue-spreaders by the sheet-turning method, and into two Marloff cold presses located immediately adjacent to the spreading stations.

The two hot presses, both Williams-White, are near three Globe glue spreaders. The 5′x10′ hot press is hand-fed, with 20 openings. The 24-opening 4′x8′ press, which handles the bulk of the volume, is automatically charged and unloaded.

Reichhold glue is used for interior and some exterior plywood, and an exterior resin developed by Georgia-Pacific is used on exterior grades only.

Press temperatures and cycles are governed by thickness and type of plywood. Interior grade 5/16″-9/16″ is pressed for about two and one-half minutes at 270°. The press unloader takes less than 15 seconds to discharge one load and insert another load.

From the presses, a Globe automatic skinner and cutoff saw trims plywood to 4′x8′ dimensions, and an automatic Prentice skinner and cutoff saw trims the 5′x10′ panels.

The sanding department includes a 49″ double deck sander and a 61″ sander, both by Yates-American.

A plant-built oiling machine oils plywood produced for concrete forms. Edges are sprayed with color identifying panels as exterior or interior grade. The oiling is done with a pair of manually-adjusted rolls.

A portion of the ⅜″ exterior plywood output is run through a "T-1-11" machine where grooves are machined at various spacings for use as "Texture-One-Eleven" designed for combined sheathing and siding.

Off the plywood patching line a Globe belt sander supplies finishing touches to the final product.

The dual mill is well-designed for storage and shipping. As much as ten carloads and two truckloads can be loaded under roof. A railroad spur track with space for ten cars runs right down the middle of the building, and there are two 10′x50′ truck pits to permit loading at convenient level under cover.

Manager of the plywood operation is Vance Vollmer. Jack Harmon is production supervisor. D. Duncan Dashney is general manager of the redwood division, which includes the facilities described, three sawmills and a logging operation in the area. □

Skyline Pushes Straight Line Production

By Darrell Ward
Engineering Editor

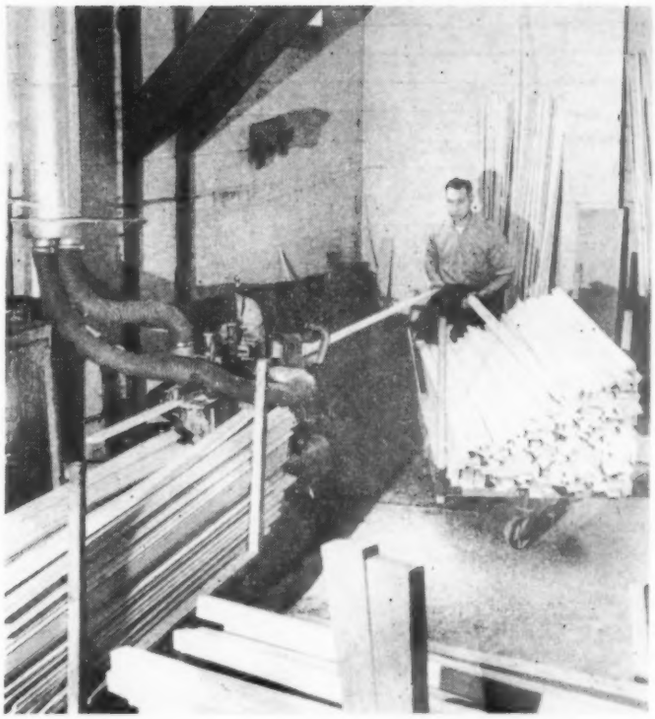
All cabinet work begins at this end of the cabinet shop and is kept moving right through. Completed cabinets move immediately to production floor storage area for transfer as needed on assembly line.

Plywood facing for partitions is glued to ¾" frame and tacked with a ⅝" Senco staple gun.

Vendor trucks are unloaded inside the plant from a drive-through aisle directly to storage bay. Then material from lumber storage (picture at far left) is moved to finish mill, cabinet shop or rough mill by a Towmotor fork lift as needed.

The finish mill (left) cuts all components for cabinets. Materials moving through this shop include raw fir plywood for wall panel partitions, ¾" pine for framing, seal-coated ¼" walnut facing for walls and cabinets and ⅜" fir plywood for drawer sides.

All sticker parts (right) are of white pine and are run through this XL Moldmaster No. 40. The machine is equipped with high speed cutters ground and sharpened by the operator.



Skyline Homes, Inc., of Elkhart, Indiana is a young organization which has acquired an enviable reputation in the mobile home industry. Creditors and suppliers say the company is outstanding for keeping everything on a current basis. Dealers claim that Skyline's units are some of the easiest to sell because of quality and appearance offered for the money. The operation is a humming bee-hive of activity where every worker seemed filled with a zest for getting the job done, more like well-trained football teams than departmental groups.

The whole company, in fact, appeared to be well coordinated from supply lines through production to dealer pickup at the plant. Practically all coaches built are sold and delivered immediately. A minimum of inventory is maintained with supplies generally geared to production schedules. Some inventory items, for example, are turned over 100 times a year. Lumber, however, which comes from the West Coast in carload lots, is worked out at the rate of about 30 to 40 times a year. All dimension material is specified "B" and better, kiln dried.

Lumber is stored in a small building, 40′ x 200′, at the side of the main plant and is moved into the mills as required by fork lift. Other items are delivered by the suppliers direct to stock storage areas in the center bay of the building. On the west side of the main building, there is a drive-through passageway. On the east side, there is a straight line assembly with floor rail guide for the hitch caster. The center bay is used for parts, subassembly storage, and for table jigs where side walls are constructed, all handy to the assembly line in sequence of construction.

The main plant is actually two buildings standing end-to-end, with side additions built on as integral parts of the main buildings. The side buildings house the rough mill, finish mill, and cabinet shop, leaving the two main buildings clear for free passage of delivery trucks on one side and smooth in-line flow of units under construction on the other.

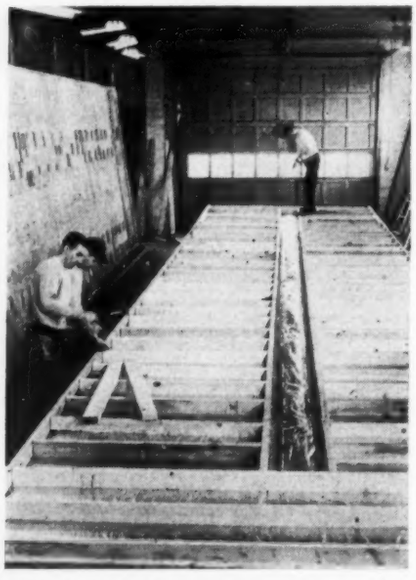
Construction of a unit has already begun by the time an undercarriage is brought into the rear door of the rear building. Floor framing is built up with larch or fir members on vertical jigs. Floor bottoms are facing out, being covered with half-pound density fiber glass sheets with vapor barrier and reflective barrier sandwiched between framing and ½" impregnated insulation board.

This assembly is manually lowered from jig to undercarriage and bolted to the steel cross members which are spaced 4′ on centers to cover the insulation board joints. The heat duct is nested in from the top of the egg-crate construction and covered with additional spun glass insulation.

Decking of ⅜" fir plywood is laid with polyvinyl adhesive and screws driven approximately 3" apart. Number 10 x 1¾" screws are used for the 6" floor,

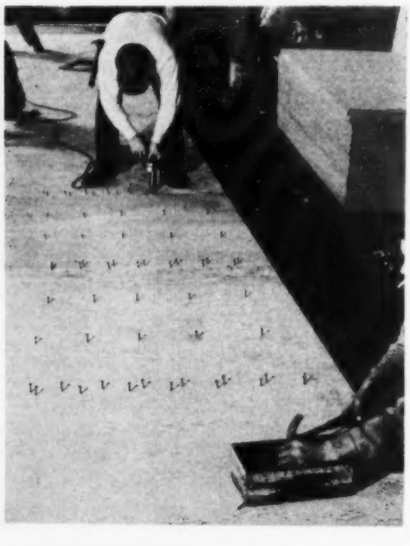
This Delta tilting arbor bench saw cuts "V" rafters from 2" x 6" fir by means of a homemade rafter jig. The rough dimension stock is inserted between end stops for the first pass. Then one end is shifted to a second set of stops for quick location to the second pass.

Floors are framed "bottoms out" then manually lowered from vertical jigs onto undercarriage or chassis frame at the beginning of straight line assembly.

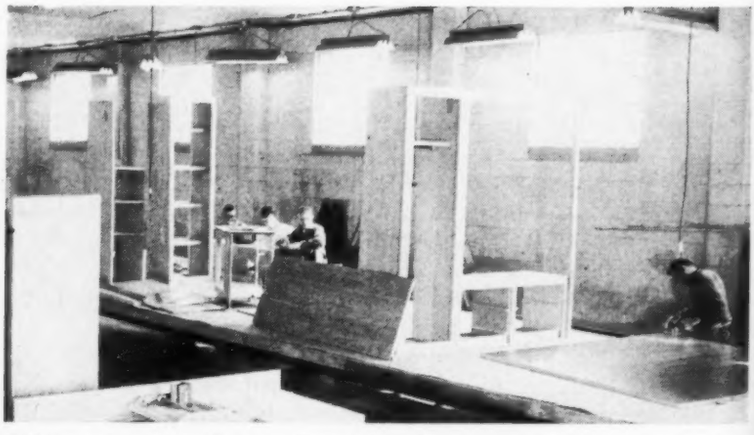


Floor is bolted to undercarriage and joints, not accessible on jigs, are spiked.

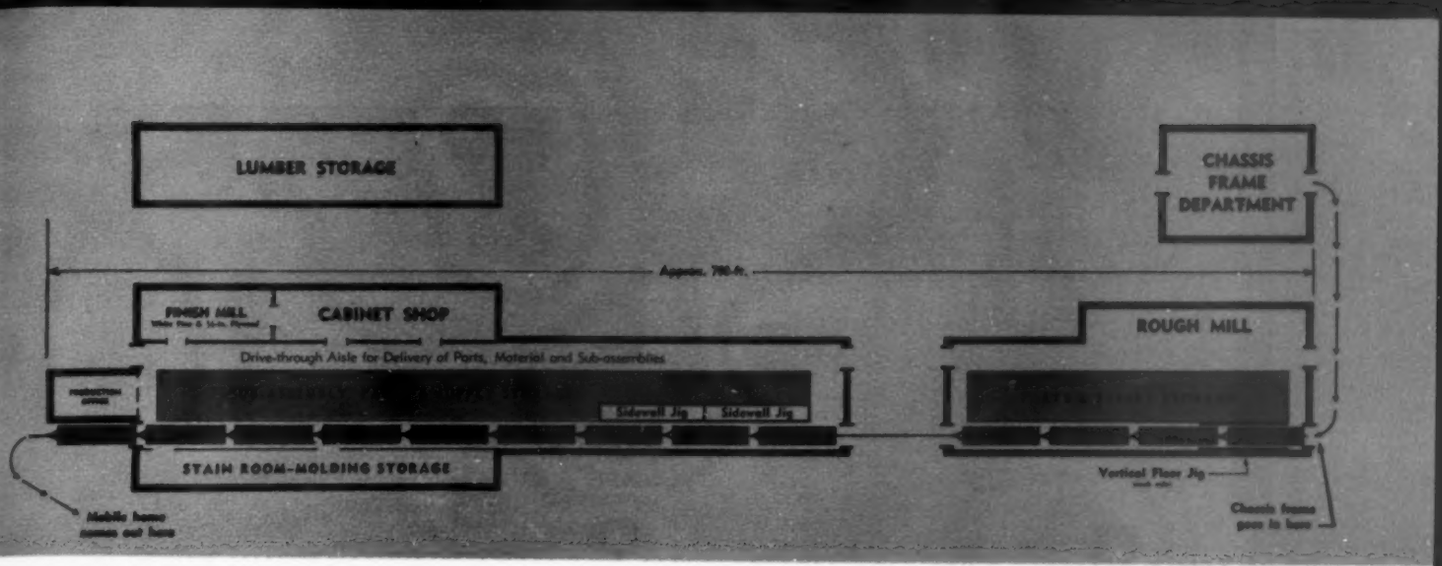
A Porter Cable electric handsaw is used for cutting registered holes required in the perimeter heating system.

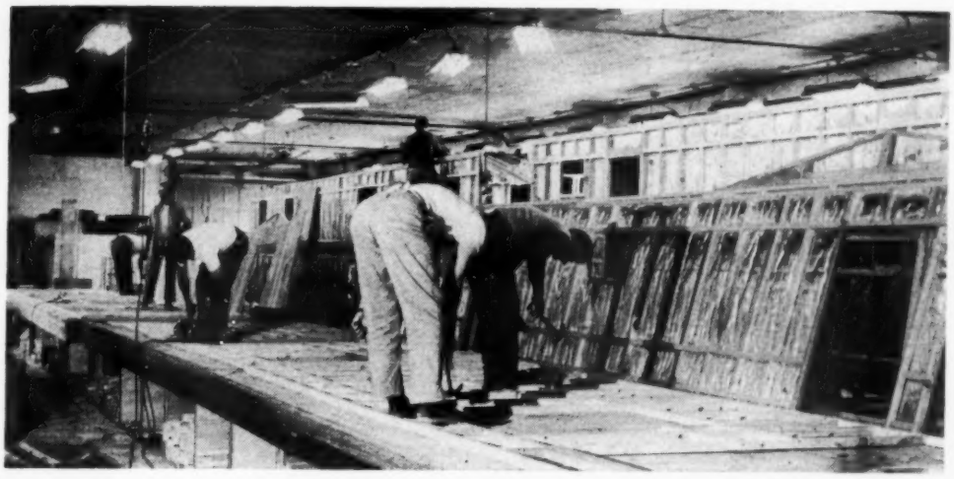


One worker (left) starts No. 10 screws with hammer while another rapidly drives them below surface of plywood floor decking with Black & Decker electric driver.



Cabinets are set in place on floor (above) after tile is laid and covered with protective paper.

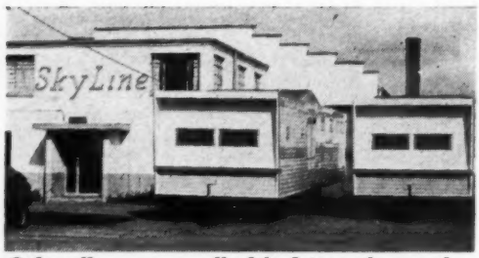




While other operations are in progress, this crew is building matching sidewalls (door and off-door side) on the two table type sidewall jigs.

This sub-assembly shows interior facing being applied to an off-door sidewall. Seal-coated walnut or limba covers exposed wall areas while unfinished fir plywood covers areas to be concealed with cabinet work.

Impatient to keep their quota up, this crew has grabbed a complete sidewall and is running with it to the other building for installation on a unit waiting for this operation. Such flexibility was noted along the assembly line. No workers were seen waiting in their normal work position for a unit to move up. Nearly all work was being performed while units were actually rolling.



Sidewalls are manually lifted into place and spiked down to the floor. End members and cabinet work retain walls in vertical position until roof is constructed later.

After metal work, wiring and plumbing are completed, the finished "box" comes out of plant No. 1, ready for interior decoration and furnishing.

driven through furring strips. Inlaid linoleum is laid after the plywood decking is sanded smooth.

Prefabricated cabinets are transferred manually from cabinet shop to center bay and then to assembly positions as needed.

Side walls are built of 2″ x 2″ fir, dadoed for three belt rails. Inside surfaces are covered with seal-coated hardwood plywood or unfinished fir plywood with the spun glass insulation between panels and framing. Natural finishes are featured in the higher priced units while printed finishes are used in the lower priced units. Unfinished fir goes over wall areas enclosed with cabinets or closets.

The prefabricated side walls are lifted into place and nailed to the floor. Cabinets and framing members at front and rear retain the side walls. Spacer braces are placed on the top plates to hold alignment until plywood ceilings are nailed to the top plates. Next comes more insulation, then ceiling rafters, and finally the ceiling plywood is screwed up to the rafters.

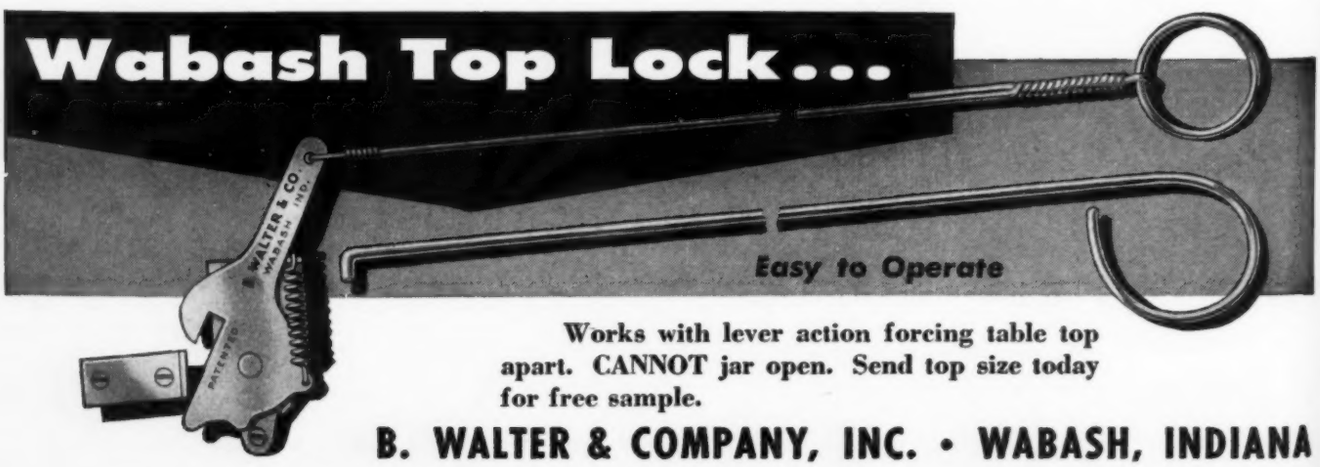
This completes the basic box woodwork except for interior trim, drawers and doors. Romex wiring is run through notches in frame members to various switch, outlet or fixture boxes. Protective metal clamps protect the wiring at these notches from body screws applied later.

Prefinished aluminum siding and a one-piece galvanized roof cover the unit. Clutch head screws are driven through overlapping seams of the siding with rubber seal between. The roof is treated with an aluminized asphalt protective coating. An extruded aluminum drip rail runs the length of the unit on the off-door side and a full length awning rail runs along the top on the door side. The unit now rolls off the assembly line of plant No. 1.

Major fixtures, appliances, furniture and interior decoration are installed in plant No. 2, called the final finish plant. After this, the unit moves to the yard for dealer pickup.

This is the way that Skyline produces at least eight 50′ mobile homes per day in the slow season and demonstrates a capacity for up to 20 units per day as the anticipated market demand climbs in the future.

A key to the enthusiasm and efficiency of the plant is an incentive system under which the workers are paid on the basis of the number of units completed instead of hourly rates. When the crews have performed their day's assignment and each stage of work has passed inspection as units move up the line, the work day is over and the men go home—often as early as 2:00 p.m. □



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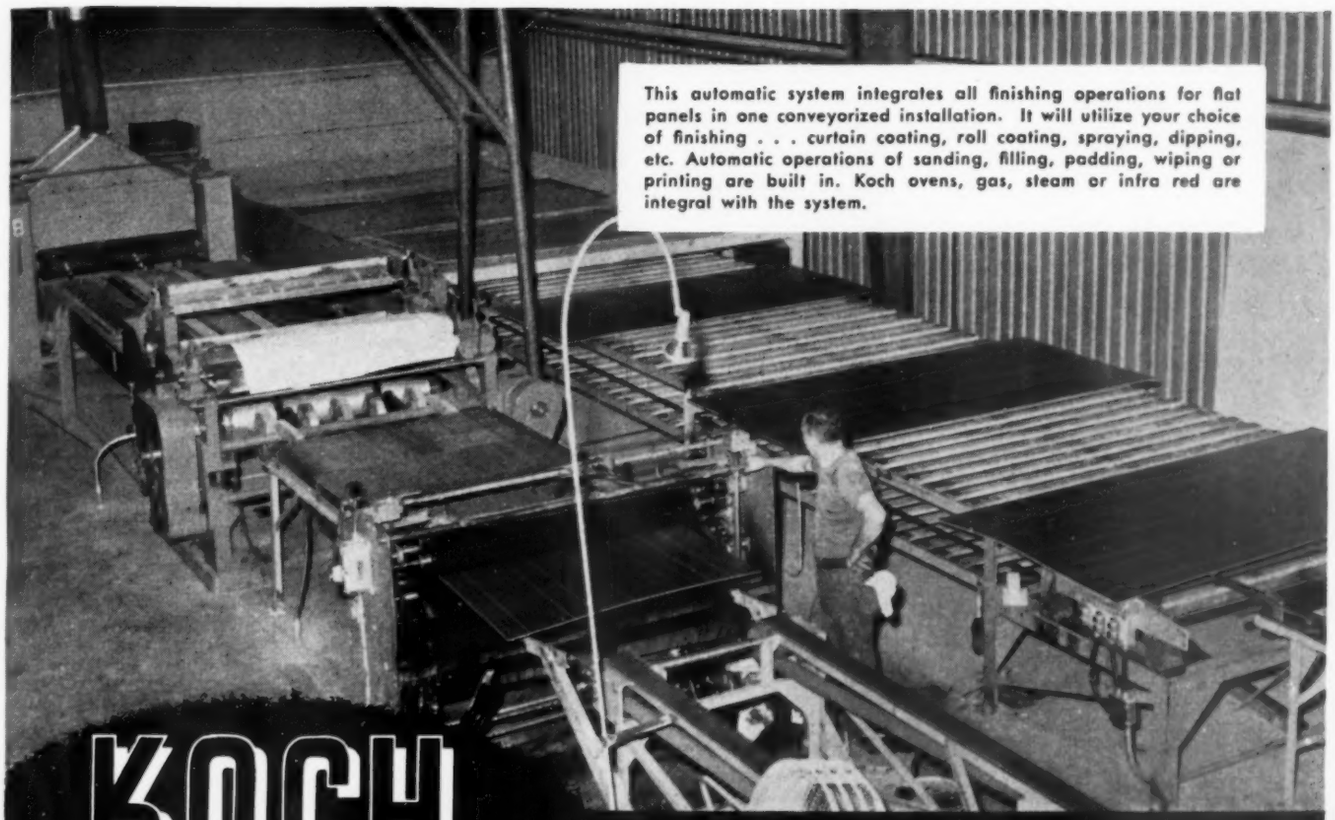

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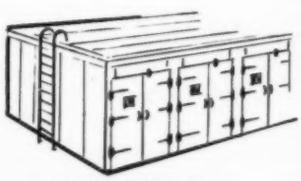
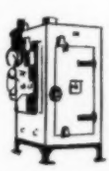
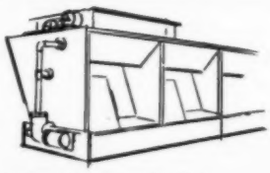


TRUCK OVENS



CABINET OVENS



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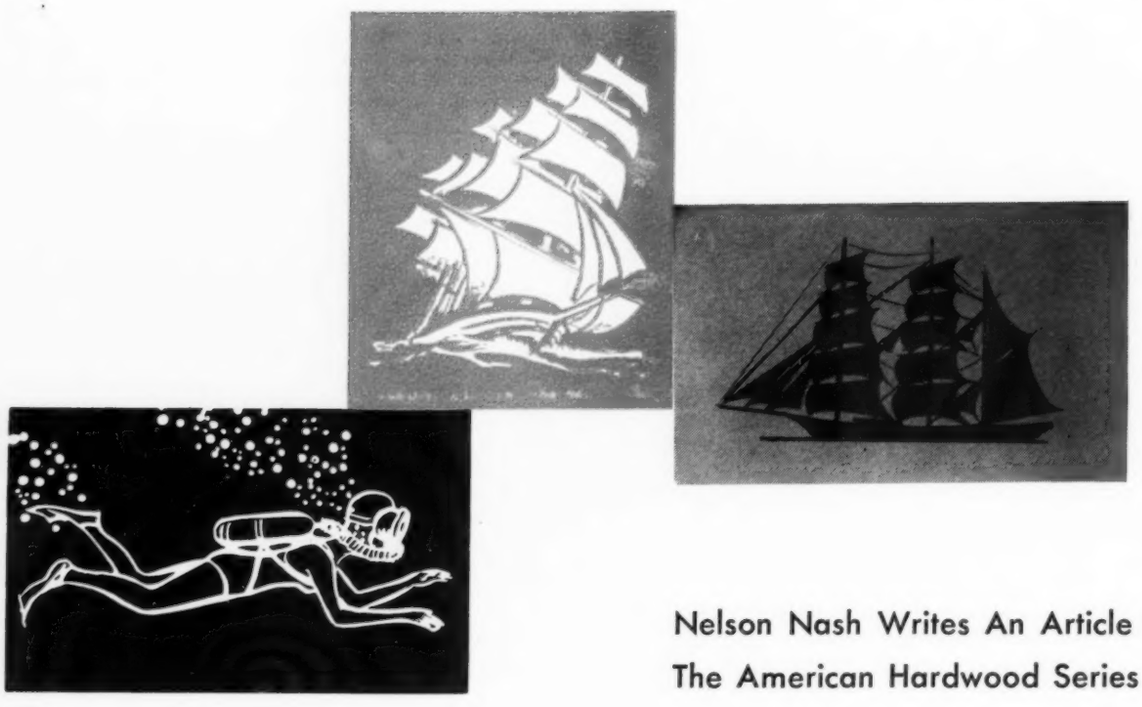


Nelson Nash Writes An Article In
The American Hardwood Series . . .

THE WHITE OAK FLYING DUTCHMAN

A Legend Come True . . . Part II

WHAT WENT BEFORE: I, Alba Quercus, love skin diving. One day while out with a party which included my boy friend, Biff, I dived too deep. A huge shadow overhead turned the sea around me black. Finally I was rescued by the mythical sailing vessel, THE FLYING DUTCHMAN, whose Captain was doomed to sail the seven seas until a girl fell in love with him and was faithful to him for at least one year. I fell in love with him at first sight and I wanted to save his soul, but it was rather difficult because he always talked about White Oak. In desperation I faked a fainting spell. They then took me to the ship's hospital where I met Doc who had seen right through my trick.

IF there is one thing I, Alba Quercus, liked better than skin diving it was listening to gossip. Therefore, I was all ears when Doc started telling me the story behind the story of the legend of *The White Oak Flying Dutchman.*

"All of us Nobodys who sail on this vessel," said Doc, "were once upon a time Somebodys. Because we sinned in some way against white oak, Fate condemned us to spend our days on this white oak vessel, eating crow.

"Take our Captain. He comes from one of the noblest families in the world. Like may a well-to-do young man he was asked to serve on the building committee for his community's new church, even though he had never bought as much as a kitchen chair in all his life. Many architectural woodworkers submitted bids and blueprints for the

pews, doors, windows, cabinets, carvings and other woodwork, for which they proposed to use white oak.

"Our Captain made the lives of these good woodworkers miserable. He wanted everything cheaper, CHEAPER, CHEAPER! Well, they made it cheaper, using cheaper woods, cheaper construction and other cheapening shortcuts.

"They finally got their edifice built. At first everything was wonderful and the whole congregation blessed the Captain for saving them money. But after about 10 or 15 years the furnishings began to look twice their age. The sweetness of cheapness was forgotten while the bitterness of unsuitable quality became ever more noticeable.

"After all, institutional furnishings get much more use and abuse than home furniture. For instance, during the winter it would be almost freezing for six days and on the seventh day the auditorium would suffer from overheating. Erosion took place.

"Many quit and joined other congregations with more beautiful furnishings. Everybody was against our Captain, because their house of worship had to be completely refurnished at enormous expense. However, they had learned their lesson, and they used white oak, one of the best materials for their new institutional furniture that would endure for centuries. Future generations will bless the building committee members who realize that for institutional furniture only the best materials are the cheapest in the long run, regardless of initial cost.

"Cursed, clapperclawed, clobbered and confounded by his fellow congregants, our Captain was transfixed to his present state as skipper of *The Flying Dutchman*. Only the love of a pure maiden will ever be able to rescue him from his fate."

"This is horrible, horrible," I sobbed.

Doc just laughed: "It's nothing. Really. My own crime against white oak is much worse. My sin is far greater."

"No, Doc. It's not possible. It can't be," I wept.

"Listen. I was once a famous doctor. I might have been the greatest in the world. Thousands of grateful patients wanted to build me a hospital and name it after me. I was intoxicated with my own greatness. I thought I knew everything—particularly hospital furniture. Little did I realize that the sick are cured not by pills alone, but also by kindness and pleasant surroundings.

"In my overbearing arrogance I had my hospital furnished with metal furniture. You should have heard the high-pitched squeaking of the drawers, cabinet doors and beds. No wonder my patients did not get better. They got little rest or peace. The piercing squeaks would keep them up, or wake them just when they fell asleep.

"It was all my fault. I had been warned. They told me to use white oak institutional furniture, because it had a long excellent record for usefulness and serviceability.

"Finally, the cumulative effect of my patients' vehement curses placed me here—practicing on *The Flying Dutchman*."

I knew just what Doc meant, because I remembered a report that had appeared in the *New York*

Sunday Times,—October 18, 1959, page 127, in which doctors themselves assailed the present-day impersonal, even brusque hospital mood. There can be no doubt that pleasant surroundings, wooden furniture, wooden wheel chairs etc. have a positive therapeutic value.

White Oak Leads the Way

Just then there was a noise outside the cabin. I quickly pretended to be sick again. The Captain entered, full of compassion.

"She's going to be all right, Doc? Tell me, tell me the truth."

"Aye, aye, Captain. She'll be alright."

"Oh, good. You know, Doc, she has fallen in love with me, because of the legend, and she is determined to save me through her love. You know, Doc, this might be the end of *The Flying Dutchman*. How do you feel about that?"

"We could all use the rest, sir, because I believe everybody on this ship is convinced by now of the superior qualities of white oak. But what would happen to you, Captain?"

"I would again become a mortal and my mission would be to sing the praises of white oak."

"Why are you so obsessed with white oak, Captain?"

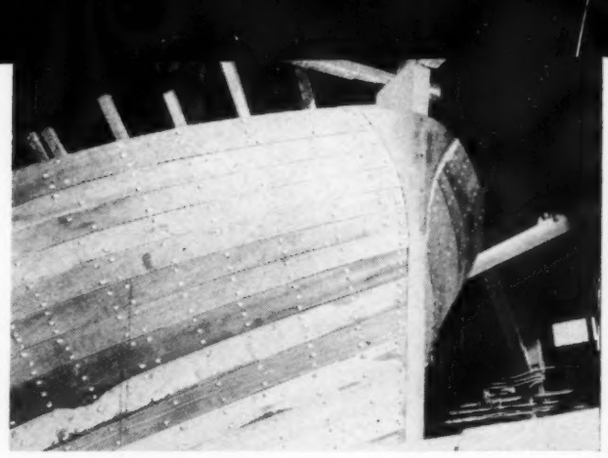
"I'll tell you. Of all the woods in the world, none has stood up to as much punishment throughout the ages as white oak, and it is still going strong. Therefore, we know more about white oak than about many other woods.

"Thanks to the research program of the U.S. Navy and John G. Kuenzel, Senior Materials Engineer (Forest Products), Bureau of Ships, Washington, D.C., there have been numerous interesting and important developments in the fields of gluing, laminating, preservative treatments and fabrication of wood, particularly white oak.

"Generally speaking, industry has not even begun to absorb this modern concept of wood as an engineering material. However, luckily, much of this new knowledge—which is also applicable to many other species of wood—is available from the U.S. Department of the Navy, Bureau of Ships, Washington, D.C. In 1957 they published four different manuals on wood [two of these are confidential]. They should be compulsory reading for every woodworker."

"Does that mean," asked Doc, "that my Captain has definitely decided to give up the ship and return to the world of mortals?"

"I'm tempted, but I don't really know yet myself, Doc. But, oh, how I'd like to tell off some of these 'smartalecks' who think wood's days are numbered. I'd like to throw the 1952 Naval Academy textbook on engineering materials at them, in which it is prophetically written: *'As our natural mineral sources are being consumed to the vanishing point, it is anticipated that wood again will become an important structural material.'* What do you say to that, eh, Doc?"



Wood is naturally best for boats. This is especially true of white oak which is used for the frames, keel, keelson, stem, floor beams and all other parts where strength is important.

"I say, Captain, let's take the young lady on deck in one of our stunning white oak wheel chairs. The fresh air will do her good."

Little by little I faked my "recovery." You should have heard the hurrahs when I finally opened my eyes and smiled. It was the signal for a celebration.

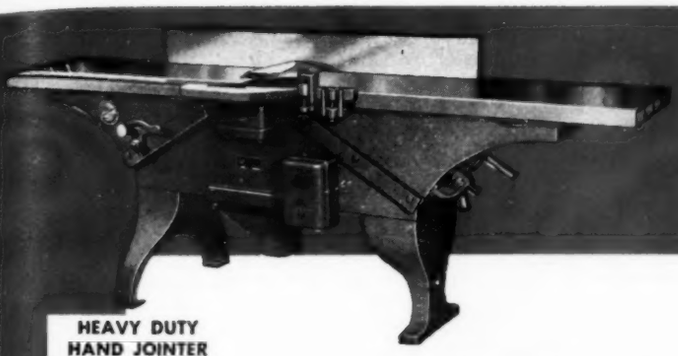
One of the pirates rolled a huge white oak barrel filled with rum towards us. It must have weighed close to a thousand pounds, yet one man steered it easily and smoothly straight ahead or around curves.

What a wonderful thing is a barrel! What an ingenious and efficient design! It is refilled, handled and bounced around again and again. Yet it never seems to wear out or lose it's liquid tightness, thanks to the unique strength and waterproof properties of white oak.

Trial and Error

As the festivities and hilarity reached their high tide, I noticed a great deal of movement. The pirates were placing white oak chairs and desks on deck until the whole arrangement looked like a courtroom.

The Captain sat down on the presiding judge's white oak chair and laughed, "This is going to be the trial of Inspector Gribble. I am judge, jury,



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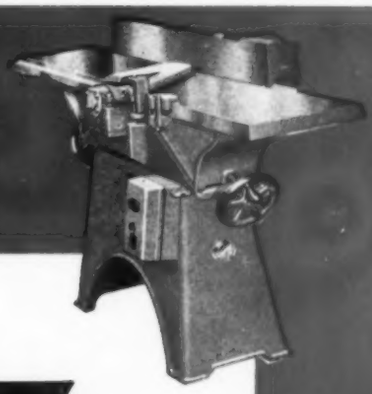

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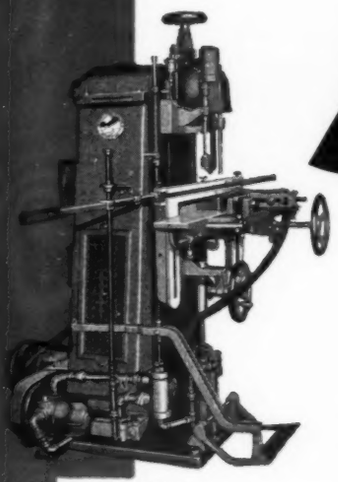
Those Who Know Us By Name . . .



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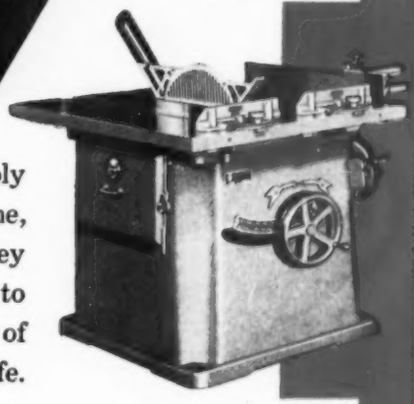

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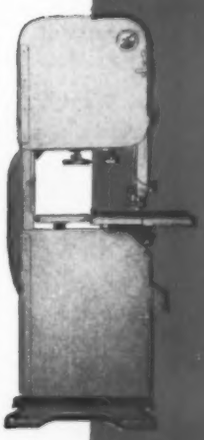

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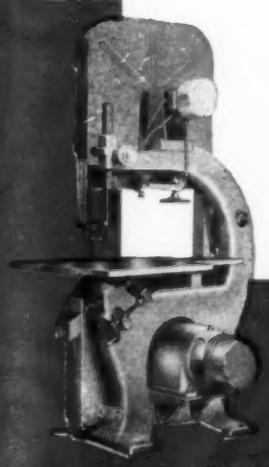

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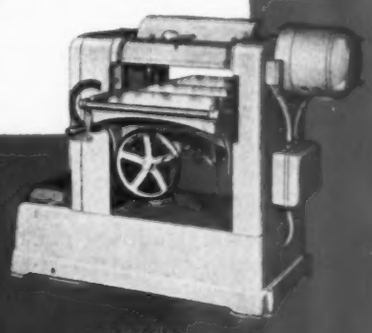


SURFACERS

defense attorney and prosecutor. Bring in the scoundrel!" he yelled.

A middle-aged distinguished looking and immaculately dressed gentleman came forward and sat down nonchalantly on the white oak witness chair.

"I say, theah, Captain old man, did you want me?"

"Rathah!" answered the Captain, imitating his clipped British accent, while the crew roared with delight. Inspector Gribble muttered to himself, "Detestable foreigners!"

When the tumult had quieted down somewhat the Captain ordered: "Come now, Gribble, tell us your rank, the century in which you operated and confess your crime."

"I'd be delighted, Captain old boy. I'll have you know I was chief inspector in the Royal British Navy, during the time of George III, just before the American Revolution. Shipbuilding, of course, is traditionally a British art—'Rule Brittania' and all that. Everybody knows that we in England had the best white oak in the world for shipbuilding. Then one day we get a message at our Navy headquarters that the colonists claimed they had discovered white oak in America that was better than ours. Imagine the nerve of these people!

"Well sir, I knew, of course, that this was ridiculous. But for the sake of appearances I went over theah. Believe me, old chap, it was ghastly, simply ghastly. So unrefined!"

"I believe you, Gribble," said the Captain sarcastically. "But what did you find out about American white oak?"

"Rahlly, Captain, you just don't seem to be able to understand. These people just couldn't be trusted. You couldn't believe a word they said. I told His Majesty, King George III, so in my reports. Neither the American people nor the American white oak are any good. No good at all!"

"Is that so, Gribble? Then how do you account for the fact that the American Navy built their ships with their own American white oak and defeated the world's navies time and again? And how do you account for the fact that the magnificent solid white oak frigate *Constitution* is still afloat after 160 years? And don't you know that the U.S. exports white oak to many parts of the world for the manufacture of tight cooperage, and for barrels to hold French wine and West Indian rum? And have you never heard of the great fleet of American clippers that sailed all over the world promoting trade? What do you say to that now, Gribble?" The Captain was getting angry.

"Rahlly, Captain, old man," replied Inspector Gribble quite calmly, "You mustn't lose your tempah. There's a perfectly logical explanation for all this. Witchcraft! That's what it was. Witchcraft!"

Exasperated the Captain sighed, "Gribble, you are an incorrigible, pompous, bureaucratic ass."

"Now look heah, Captain . . . " protested Gribble, but he got no further. There was a sudden shout from the crow's nest, "Man adrift!"

Lawless Congress

We all rushed to the white oak railing. A sorry, bedraggled looking man was bobbing on the waves in a 'beat up' canoe. The Captain hollered down, "Who and what are you?"

"I am a United States congressman. Can I come up?"

They hauled him aboard, and the Captain asked him, "How long have you been drifting at sea?"

The Congressman looked bewildered, "I don't know. I don't understand it. I was a member of the U.S. Congress around the time of the Civil War."

"Well, what happened?"

"I wish I knew. Everybody was stealing from the government. It was the accepted thing to do. I just can't understand why my constituents suddenly turned against me and cursed me and sent me adrift like an outcast."

"Ho-ho, I think I am beginning to see light," said the Captain. "Destiny sent him to us. Tell me, Congressman, who did the stealing and what did they steal?"

"Ah, yes, it's coming back to me. In 1799 Congress authorized President Adams to buy $200,000 worth of white (live) oak timberland in the South for the use of the U.S. Navy, which was running short of it. You see, white oak was highly prized as a cabinet wood and there was quite a shortage. So whoever could went into the woods and stole timber from Government reservations and other public lands. Business was real good, because the U.S. Navy had to buy stolen oak timbers from its own forests. It was a riot!"

"I can imagine! But didn't you have any laws to protect the Government's timberlands?"

"Laws? Of course, Congress passed a law in 1831 protecting the white oak trees. But nobody paid the

slightest attention to this law. Once, I remember, some busybody commissioner of the General Land Office tried to enforce this law in 1851. Shall I tell you what happened to that poor guy? He was fired for trying to do his job."

"This sounds incredible!" said the Captain.

"Are you accusing me, a U.S. congressman, of lying? If you don't believe me you can look it up in the *1949 Yearbook of Agriculture on Trees*, page 703. You'll also see there that 30 years later, in 1880, Carl Schurz, famous U.S. soldier, editor, ambassador, senator and Secretary of the Interior tried again to enforce the 1831 law. I was one of the important congressmen who succeeded in stopping him, because I did not like the way he was interfering with free enterprise. How was I to know that my constituents had put aside their larcenous natures and were demanding sound forestry programs, I ask you? How the voters suddenly hated, cursed and despised me—after I had given them the best years of my life. Let me tell you something about politics . . ."

Idiots' Delight

I, Alba Quercus, am not particularly interested in politics and I took a little stroll around the deck. Somebody was tapping me on the shoulder. It was poor Inspector Gribble.

"Excuse me, miss, would you mind very much telling me whatever became of white oak after I turned in my unfavorable report?"

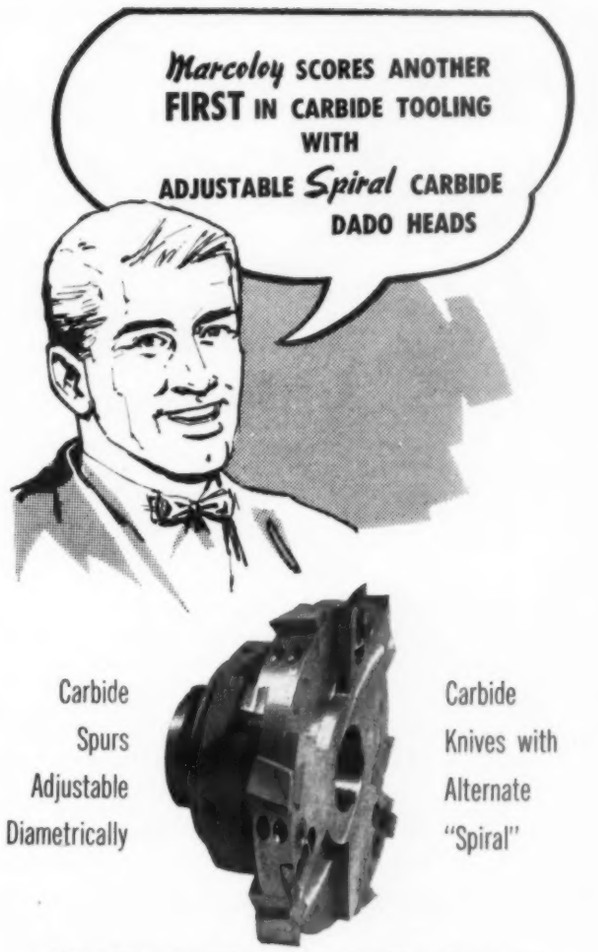
"Oh—Inspector Gribble! The Captain was right about you. You are a pompous idiot. You might as well know it. Nobody in America paid the slightest attention to your silly old report. On the contrary, white oak became one of the most famous and useful woods in America for all types of woodwork and cabinetry. Even to this day, white oak is used extensively by the U.S. Navy in enormous quantities for minesweepers, rescue tugs, net tenders, subchasers and blocking. But then, perhaps we should all be very thankful. If it hadn't been for obnoxious and prejudiced people like you, the colonies might never have revolted and there might never have been a United States of America."

In a burst of gratitude I threw my arms about him and kissed him soundly on the cheek.

Suddenly, I felt a sharp pain in my back. Turning around I was face to face with the Captain who had lashed me with his cat o'nine tails. Furious with rage he shouted:

"So! You wanton wench! Here I find you kissing the crew. I can't leave you alone for a minute! And you—you were going to save my soul? Do you call that being faithful? Get off my ship this instant!"

He started lashing out at me again with his 'cat', without giving me a chance to explain the innocence of it all. I ran. But finally he caught me, and lifting me up with one hand he tossed me back into the foaming sea.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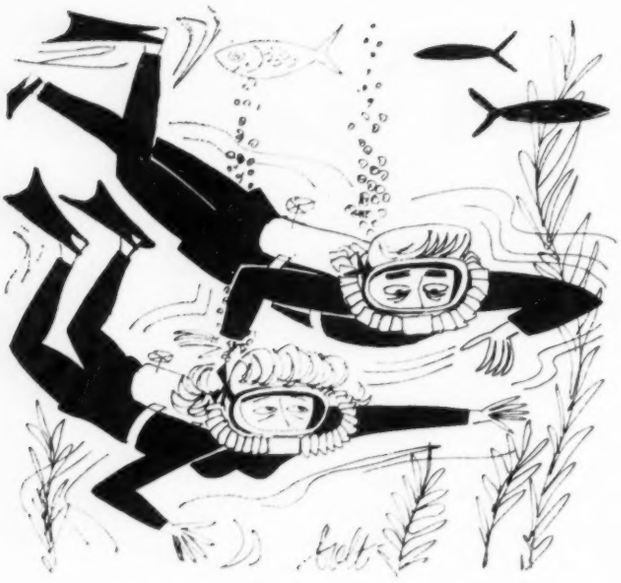

I do not know how long I was floating around. Finally, when I looked up I saw my boyfriend, Rift, swimming toward me. He was angry!

"Look here, Alba, don't you ever dare go down so deep again by yourself. Your breathing gear was not working properly and we almost gave you up as lost."

"Sorry, Rift," was all I could say.

"Yeah. O.K. Let's get back to our boat and the rest of the gang. There are no treasures down here. But tomorrow we'll go to another spot. The natives say that during the Civil War a Federal schooner carrying a load of white oak timbers sank nearby. We plan to find and salvage them."

"But what are you going to do with them, Rift? Aren't they spoiled after being submerged for nearly 100 years?"

"Oh, Alba! You are exasperating! White oak logs don't spoil in water. When we find them we'll sell them to the U.S. Navy, to veneer manufacturing or furniture factories. They love them. In fact, they have used such logs before whenever they could be found and salvaged. Don't you know anything about the marvelous properties of white oak, Alba?"

"Well then, why don't you teach me, Rift?"

"Do you—do you really mean that, Alba? It might even take a lifetime, Alba?"

I did not answer immediately. My eyes scanned the horizon for the last time. In vain. There was no sign of *The Flying Dutchman* and her Captain. I sighed. Finally I whispered, "Yes, Rift darling, yes." □

Thank you for Data & Pictures

Appalachian Hardwood Manufacturers, Inc., Cincinnati
The Golson Corp., Chicago, Ill.
Huntington Chair Corp., Huntington, W. Va.
Lyman Boat Works, Inc., Sandusky, O.
The Matthews Co., Port Clinton, O.
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.
Southern Hardwood Producers Inc., Memphis, Tenn.
U.S. Dept. of Agriculture, Washington, D.C.
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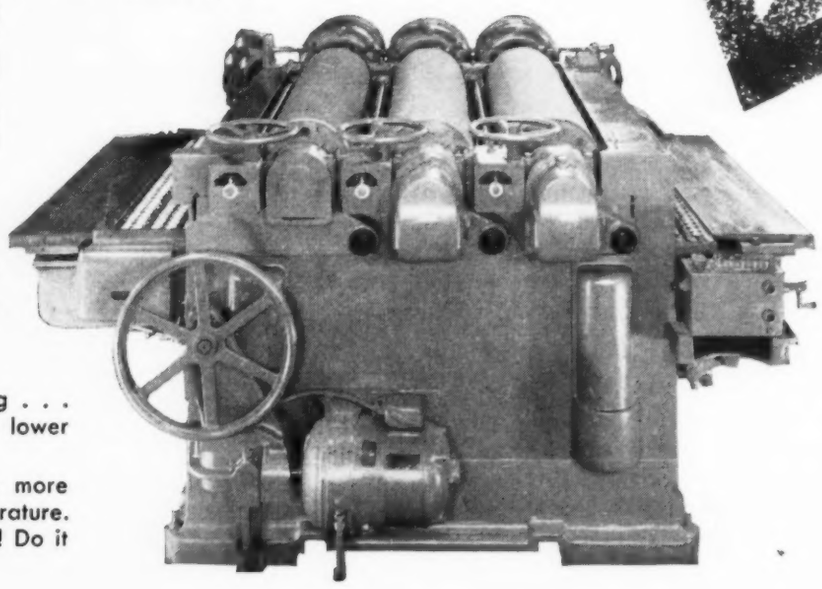

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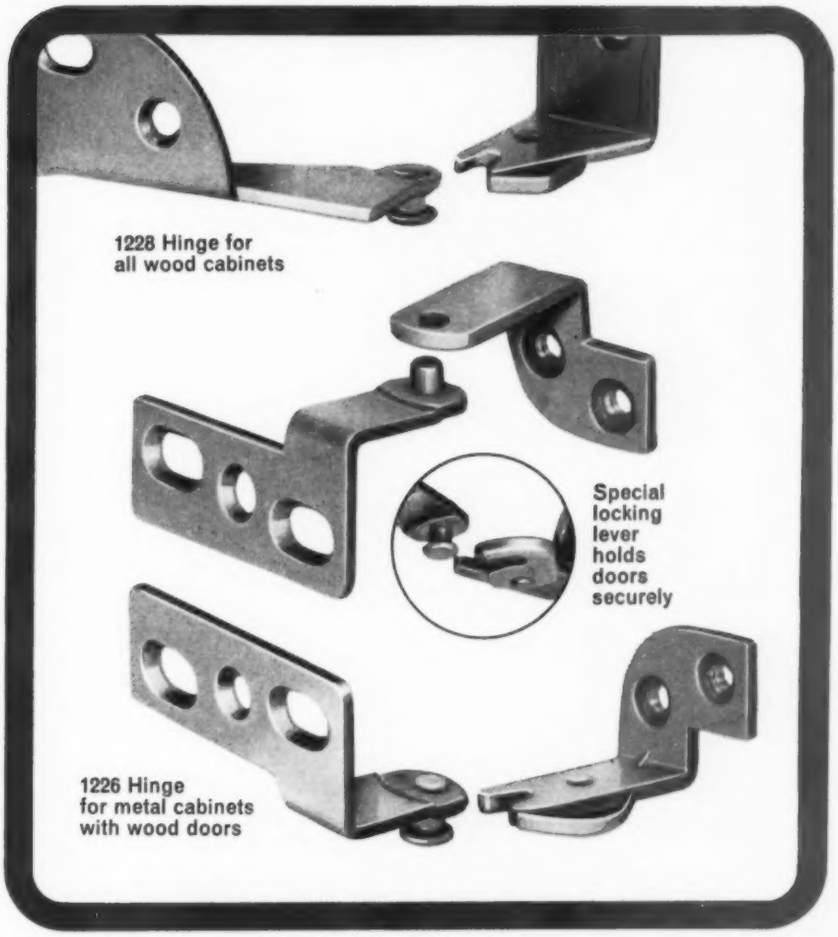
custom-engineered for you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Special locking lever holds doors securely
1226 Hinge for metal cabinets with wood doors

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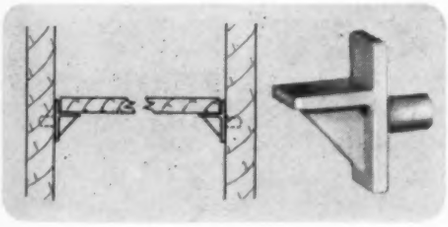

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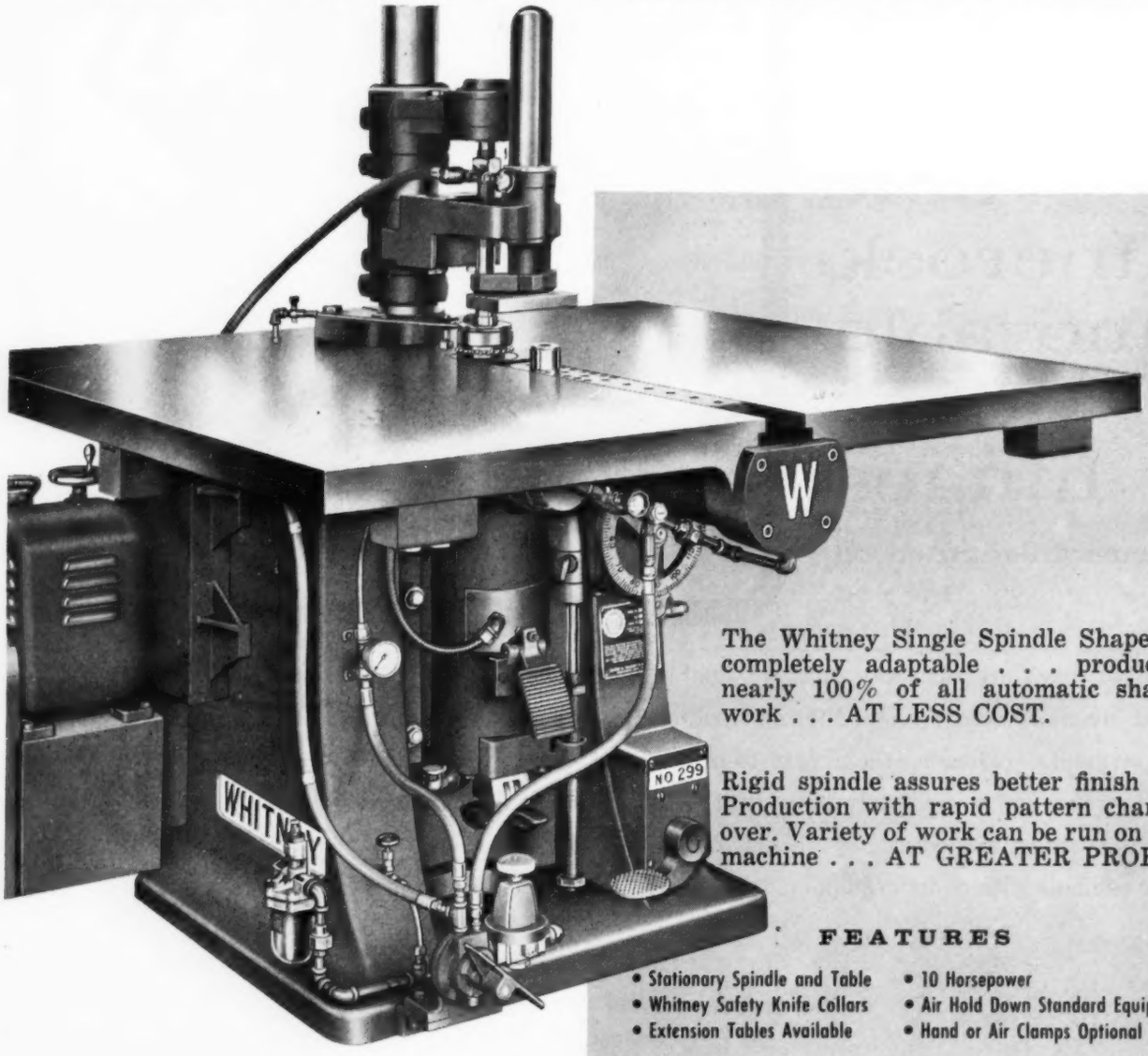

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WHO IS USING CARBIDES?

By Raymond J. Sietsema
Director of Research
Hitchcock Publishing Company

Why publish a research report like this? There are several reasons—some of those who answered questionnaires asked to see the results. We believe the comments on carbide problems will be helpful.
If you were not among those who received a questionnaire, we would be interested in knowing about your use of carbide cutting tools, or your reason for not using them. Why don't you use carbides? Or, why do you use them? What have carbides accomplished for you? We'll publish some of these comments—anonymously, of course. Let us hear from you.

—*The Editors.*

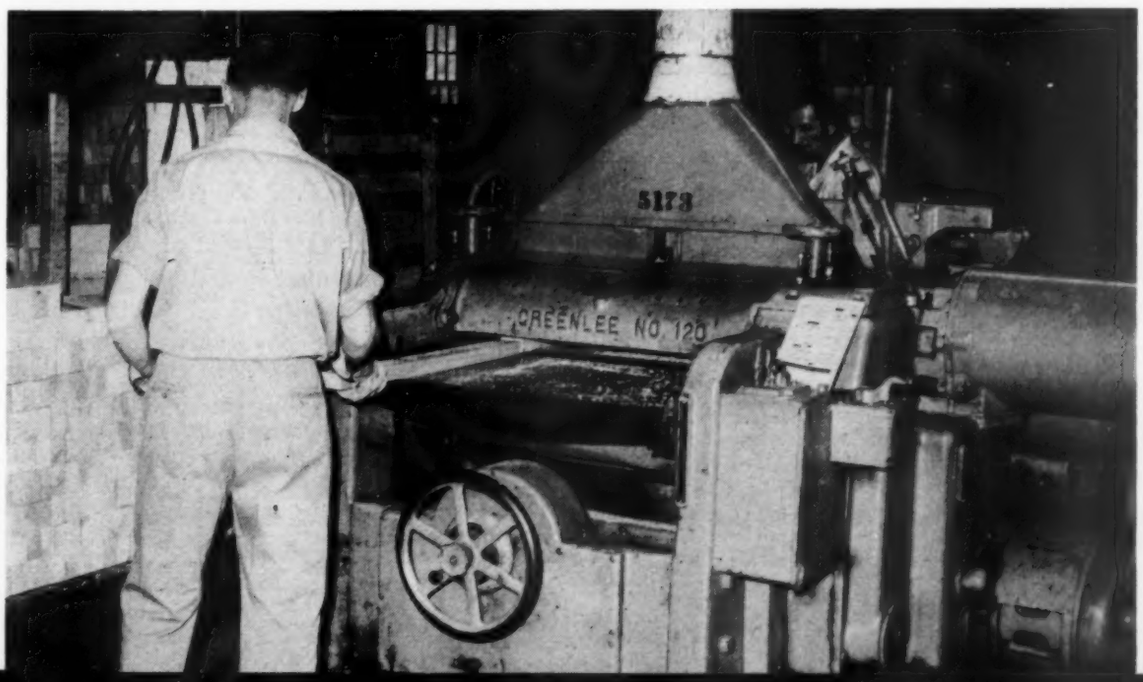
Knowledge about carbides, like that of our technical areas, has increased greatly in recent years, and many of the applications that presented major problems in earlier years are now satisfactory because of today's routine solutions. We hope that this report will show potential users what others are accomplishing and encourage them to take advantage of the cost savings, product improvement, and other benefits available. For current users, most particularly, we hope the report will show a great potential still to be realized in neglected areas.

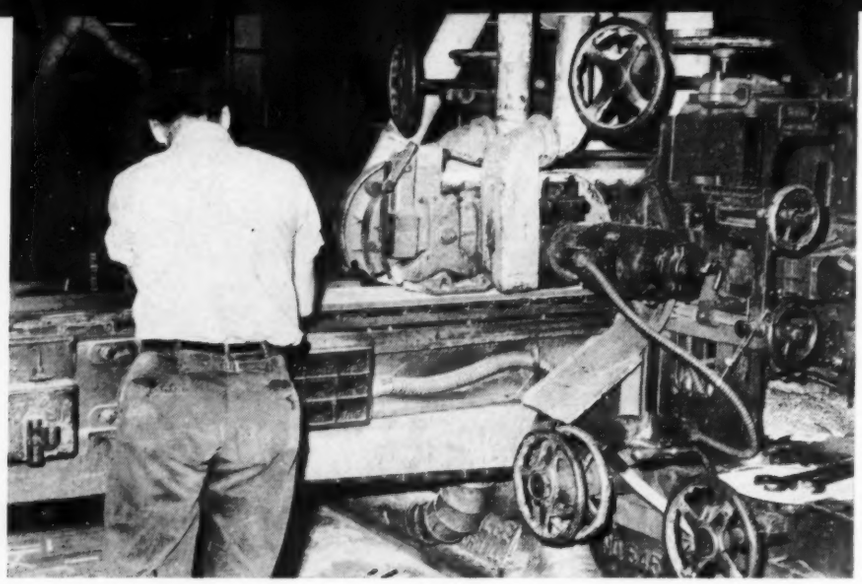
Some 871 of our readers returned questionnaires, reporting on the use of carbide cutting tools—saw blades, cutterhead knives, router bits and planer knives. And more than one-third of you were sufficiently interested to ask about results of the study.

These results show that you woodworkers who were questioned use carbides extensively in the easy, obvious saw blade applications. Your figures and comments show that you're strongly enthusiastic about the greater production, smoother cuts, lower cost-per piece, reduced maintenance and other benefits you've experienced with carbides. In fact, 78.8% use carbide tipped saw blades.

But carbides have not been utilized nearly so well in other applications. Only 46.4% use carbide cutterhead blades, 36.8% carbide router bits,

Greenlee No. 120 two-headed planer with solid carbide knives by Kennametal. Six-knife cutterheads are machining 6/4 pecan.





Operator is using a Greenlee cutoff saw with carbide blade.

and 8.6% carbide planer knives. Objections-some of them undoubtedly valid–rise as usage drops. However, carbide tool manufacturers tell us that most of the objections are no longer difficult problems. Continued research and engineering know-how have solved many early problems.

The report on planer knives includes readers' explanations of why they do not use carbides and, as already indicated, some are undoubtedly sound. Nevertheless, careful study and comparison of comments leads to the conclusion that not all of them can be right, and frequently substantial benefits are to be found *merely by applying solutions already known to carbide tool suppliers.*

The report should be of help to manufacturers of carbide tools and their representatives as it indicates the areas where they must convincingly demonstrate the value of carbide tools. A great deal of the kind of personal salesmanship and service that actually solve the problems are needed to realize the potential market.

Method of Testing

Detailed questionnaires–4100 of them–were mailed to woodworking plants regularly receiving our publication. This was done by selecting every fourth name on the over-all circulation list. Four types of questionnaires, dealing with saw blades, cutterhead knives, planer knives, and router bits, were rotated so that all four questionnaires were distributed throughout all geographic areas.

The 871 replies amounted to a 21.2% return. This appears to be a good return in view of the complexity of the questionnaire and the somewhat limited extent to which carbides have been adopted to date. The 262 requests for final results of the study plus various written comments point up the continuing interest in the unsolved problems of carbide applications.

Carbides—Pro and Con

The firm establishment of the use of carbide saw blades, and the users' enthusiasm is indicated by the following comments written in on saw blade questionnaires:

In use 13 years. Still good.
Have not discarded a carbide tool in eight years.
Absolutely necessary to use carbides!
Cutting and dadoing particle board. Almost impossible to use steel blades for this. Also cutting hard plastics.
Steel blades won't cut phenolic laminates 1/50th as well as carbides.
Could not cut_____without it.
You don't have to sell us on carbides!

(Nevertheless, reported usage of carbides for cutterheads (46.4%), router bits (36.8%), and planer knives (8.6%), drops sharply.)

Data for all questionnaires shows extreme variation. The number of working hours obtained between sharpenings of carbide saw blades, for example ranges from 16-2500, and the number of resharpenings before discard or retoothing of carbide saws ranges from 1-50.

While much of the variation is attributable to the range of materials and other variables inherent in woodworking operations, there is also the likelihood that some of the variations, including long runs between sharpenings, are due to improper use. For example, one respondent wrote, in answering a question on resharpening, "Usually wait until needs some retoothing."

Various users' comments also imply limitations on the applications of carbides that may, if not justified, deprive them of carbide benefits. Nine comments in regard to the planer knife questionnaire ascribe non-use of carbide planer knives to expected damage from foreign materials in lumber, etc., although normally this should not be a problem.

Here are some other limitations mentioned for saw blade applications:

We know that on any repetitive long run we can use carbide blades to great advantage.
Money saved in filing will pay for carbide saw in 10-15 days running.
Blades produce smooth cut and run without sharpening at least 100 times longer than steel in 1" oak and pine. No good on ripping 2" oak.

Beside the enthusiastic support for carbides, a number of dissatisfied comments were reported and several are reproduced here:

We have not benefited. Our experience was poor. We have tried carbide saws but they do not stand up long enough to pay for the extra cost.

The shops do not follow the pattern of the original tooth in resharpening. This reduces the life of the tips.

We are dropping carbides because of the sharpening problems encountered in three large firms, including one so-called leader.

We have tried carbide saws on our power feed ripsaw and they were not very satisfactory on account of saws cracking and teeth coming off.

Along with the problems suggested here, five other comments from questionnaires on planer knife utilization indicated that adequate sales efforts had not been made. Another ten replies itemized service and maintenance problems.

Who Uses Carbides?

Plants receiving these questionnaires were manufacturing: furniture, furniture parts, case goods, tables, chairs, fixtures, cabinets, millwork of all types, doors, windows, moldings and prefabricated houses and garages.

Average number of employees for the 871 plants responding was 119.

What Did We Ask?

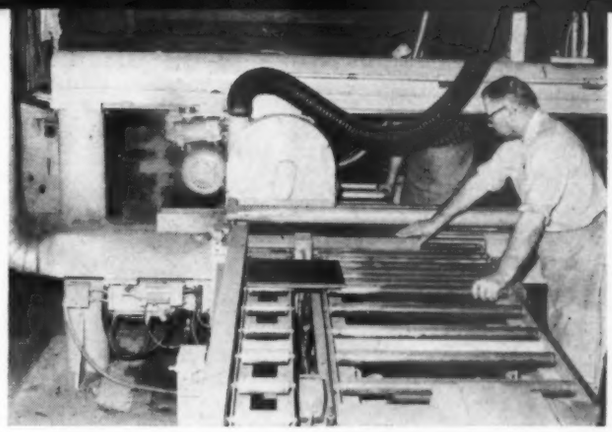
Answers to selected questions from the four questionnaires were as follows on this and other pages.

SAW BLADE QUESTIONNAIRE

Questionnaires mailed: 1025 Returned 222 % Return 21.7%
Do you use carbide tipped saw blades? Yes 141 (78.8%) No 38 (21.2%)
If yes, please indicate total number of blades in stock.
Answers—132 Total reported — 2588 Average— 19.6
Total number of steel blades in stock
Answers—127 Total reported — 5383 Average— 42.2
What is your annual expenditure for purchase of carbide tipped blades?
Answers— 84 Total reported —$35,135.40 Average—$ 418.28
Steel blades?
Answers— 85 Total reported —$28,228.00 Average—$ 332.09
How many working hours do you obtain between sharpenings of carbide blades?
Answers— 73 Unweighted total— 26,762 Average— 336.60
Material cut: Answers—82

Mentions	Materials	Mentions	Materials
44	Hardwoods, cherry, oak, walnut, maple, gum, birch, mahogany, poplar, beech, hickory, magnolia	18	Plywood
		4	Particle board, chipcore, flakeboard
		13	Hardboard
17	Softwoods, pine, cedar, fir	11	Plastics, Formica, Nevamar
16	Lumber, wood, dimenson, moldings.	6	Other

Steel blades?
Answers— 69 Unweighted total— 1689 Average— 24.5
Material cut: Answers—74



Panel saw by C. O. Porter cutting hardboard.

Mentions	Materials	Mentions	Materials
40	Hardwoods, cherry, oak, walnut, maple, birch, gum, mahogany, poplar, beech, hickory, magnolia	13	Plywood
		4	Particle board, chipcore, flakeboard
		11	Hardboard
21	Softwoods, pine, cedar, fir	6	Plastic, Formica, Nevamar
16	Lumber, wood, dimension, moldings		

How many lineal feet of material do you cut between sharpenings with:
Carbide?
Answers— 24 Unweighted total— 8,872,000 Average— 369,667
Material cut: Answers—28

Mentions	Materials	Mentions	Materials
20	Hardwoods, cherry, oak, walnut, maple, birch, gum, mahogany, poplar, beech, hickory, magnolia	5	Plywood
		2	Particle board, chipcore, flakeboard
		2	Hardboard
6	Softwood, pine, cedar, fir	2	Plastic, Formica, Nevamar
3	Lumber, wood, dimension, moldings	2	Other

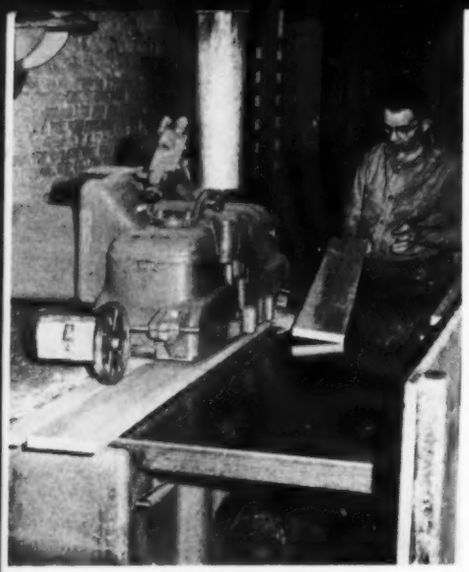
Steel?
Answers— 22 Unweighted total— 278,000 Average— 12,638
Material cut: Answers—25

Mentions	Materials	Mentions	Materials
17	Hardwoods, cherry, oak, walnut, maple, gum, birch, mahogany, poplar, beech, hickory, magnolia	5	Plywood
		2	Particle board, chipcore, flakeboard
		3	Hardboard
8	Softwoods, pine, cedar, fir	1	Plastic,Formica, Nevamar
1	Lumber, wood dimension, moldings	1	Other

How many resharpenings before blades must be discarded or retoothed?
Carbide?
Answers— 37 Unweighted total— 561 Average— 15.2
Steel?
Answers— 25 Unweighted total— 1689 Average— 67.2
Is maintenance of carbide blades handled
In your own shop? Number indicating yes: 18
Annual cost:
Answers— 6 Total reported —$12,350.00 Average—$2,058.33
Or outside? Number indicating yes: 118
Annual cost:
Answers— 61 Total reported —$27,193.00 Average—$ 446.66
Is maintenance of steel blades handled
In your own shop? Number indicating yes: 92
Annual cost:
Answers— 33 Total reported —$60,690.00 Average—$1,839.09
Or outside? Number indicating yes: 52
Annual cost:
Answers— 22 Total reported —$ 5,147.25 Average—$ 233.97

CUTTERHEAD KNIFE QUESTIONNAIRE

Questionnaires mailed: 1025 Returned 188 % Return 18.3%
Do you use carbide cutterhead knives in your operations? Yes 70 (46.4%) No 81 (53.6%)
If yes, please indicate total number of carbide knives in stock.
Answers— 45 Total reported — 1290 Average— 28.7
On what kind of cutterheads do you use carbide blades? Answers 51



Mattison No. 202 ripsaw ripping and matching solid 5/4 cherry.

Mentions	Kinds	Mentions	Kinds
27	Shaper	2	Jointer
10	Molder	1	Dado
7	Planer	8	Saws
6	Tenoner	7	Routers
4	Sticker	11	Others

Total number of steel knives in stock.
Answers— 51 Total reported — 9542 Average— 187.1
What is your annual expenditure for purchase of carbide cutterhead knives?
Answers— 31 Total reported —$19,096 Average—$ 616.00
Steel cutterhead knives?
Answers— 45 Total reported —$30,595 Average—$ 679.89
How many working hours do you obtain between sharpenings of carbide knives?
Answers— 25 Unweighted total— 3268 Average— 130.7
Material cut: Answers—35

Mentions	Materials	Mentions	Materials
19	Hardwoods, cherry, oak, maple, birch, poplar, beech, hickory, teak cottonwood	1	Particle board
		3	Hardboard, Masonite
		4	Plastics
		6	Other
5	Softwoods, pine, fr hemlock		
6	Lumber, wood		
8	Plywood		

Steel knives
Answers— 41 Unweighted total— 977 Average— 23.8
Material cut: Answers—44

Mentions	Materials	Mentions	Materials
20	Hardwoods, cherry, oak, maple, birch, poplar, beech, hickory, teak, cottonwood	11	Lumber, wood
		3	Plywood
		1	Particle board
		2	Hardboard, Masonite
14	Softwoods, pine, fir, hemlock	1	Plastic
		6	Others

How many lineal feet of material do you cut between sharpenings with: Carbide knives
Answers— 14 Unweighted total— 1,878,400 Average— 134,171
Material cut: Answers—20

Mentions	Materials	Mentions	Materials
12	Hardwoods, cherry, oak maple, birch, poplar, beech, hickory, teak, cottonwood	3	Lumber, wood
		4	Plywood
		1	Particle board
		2	Hardboard, Masonite
3	Softwoods, pine, fir, hemlock	2	Plastic
		4	Others

Steel knives?
Answers— 24 Unweighted total— 2,117,500 Average— 88,229
Material cut: Answers—27

Mentions	Materials	Mentions	Materials
14	Hardwoods, cherry, oak, maple, birch, poplar, beech, hickory, teak, cottonwood	6	Lumber, wood
		2	Plywood
		1	Particle board
		1	Hardboard, Masonite
8	Softwoods, pine, fir, hemlock	1	Plastic
		5	Other

How many resharpenings before knives must be discarded?
Carbide?
Answers— 16 Unweighted total— 420 Average— 26.3
Steel?
Is maintenance of carbide knives handled:
In your own shop? Number indicating yes: 13
Answers— 22 Unweighted total— 979 Average— 44.5
Annual cost:
Answers— 2 Total reported —$ 500.00 Average—$ 250.00
Or outside? Number indicating yes: 55
Annual cost:
Answers— 21 Total reported —$ 5581.00 Average—$ 265.76
Is maintenance of steel knives handled:
In your own shop? Number indicating yes: 78
Annual cost:
Answers— 25 Total reported —$36,570.00 Average—$1,462.80
Or outside? Number indicating yes: 12
Annual cost:
Answers— 6 Total reported —$ 1,120.00 Average—$ 186.67

ROUTER BIT QUESTIONNAIRE

Questionnaires mailed: 1025 Returned 258 % Return 21.1%
Do you use carbide router bits in your operations? Yes 81 (36.8%) No. 139 (63.2%)
If yes, please indicate total number of router bits in stock.
Answers— 64 Total reported — 2362 Average— 36.9
Total number of steel router bits in stock:
Answers— 74 Total reported — 5644 Average— 76.3
What is your annual expenditure for purchase of carbide router bits?
Answers— 44 Total reported —$33,170 Average—$ 753.85
Steel router bits?
Answers— 58 Total reported —$29,982 Average—$ 516.93
How many working hours do you obtain between sharpenings of carbide bits?
Answers— 27 Unweighted total— 2876 Average— 106.5
Material cut: Answers—35

Mentions	Materials	Mentions	Materials
8	Hardwoods, oak, walnut, maple, gum, pecan	2	Particle board
		4	Masonite
4	Softwoods, fir	5	Formica, plastic
5	Wood, lumber	6	Other
15	Plywood		

Steel bits?
Answers— 38 Unweighted total— 836 Average— 22.0
Material cut: Answers—43

Mentions	Materials	Mentions	Materials
16	Hardwoods, cherry, oak, walnut, maple, gum birch, pecan, ash	11	Plywood
		2	Particle board
		1	Masonite
5	Softwoods, pine, fir	1	Plastic
14	Lumber, wood	3	Other

How many resharpenings before bits must be discarded?
Carbide?
Answers— 30 Unweighted total— 455 Average— 15.2
Steel?
Answers— 36 Unweighted total— 672 Average— 18.6
Is maintenance of carbide bits handled:
In your own shop? Number indicating yes: 17
Annual cost:
Answers— 5 Total reported —$12,830.00 Average—$2,566.00
Or outside? Number indicating yes: 62
Annual cost:
Answers— 22 Total reported —$23,634.00 Average—$1,074.27
Is maintenance of steel bits handled:
In your own shop? Number indicating yes: 84
Annual cost:
Answers— 15 Total reported —$ 4,230.00 Average—$ 282.00
Or outside? Number indicating yes: 13
Annual cost:
Answers— 2 Total reported —$ 150.00 Average—$ 75.00

PLANER KNIFE QUESTIONNAIRE

Questonnaires mailed: 1025 Returned 205 -% Return 19.8%
Do you use carbide planer knives? Yes 14 (8.0%) No 149 (91.4%)

Please indicate total number of carbide planer knives in stock.
Answers— 10 Total reported — 102 Average— 10.2
Total number of steel planer knives in stock. —
Answers— 66 Total reported — 1795 Average— 27.2
Please check the lengths of knives you use:

Carbide: Answers—16

Mentions	Lengths	Mentions	Lengths
8	Up to 6″	5	18″ to 30″
2	6″ to 12″	5	30″ to 54″
3	12″ to 18″		

Steel: Answers—83

Mentions	Lengths	Mentions	Lengths
20	Up to 6″	46	18″ to 30″
25	6″ to 12″	30	30″ to 54″
20	12″ to 18″		

What is your annual expenditure for purchase of:
Carbide planer knives?
Answers— 8 Total reported —$ 5,600.00 Average—$ 700.00
Steel planer knives? —
Answers— 41 Total reported —$23,953.00 Average—$ 584.22
How many resharpenings before knives must be discarded:
Carbide?
Answers— 4 Unweighted total— 112 Average— 28
Steel?
Answers— 31 Unweighted total— 1757 Average— 56.7

If you are not using carbide knives, what is the main reason?
Number of firms answering: 95

Verbatim Comments, Grouped by Type:

Cost—20 replies
Too expensive and do not last long enough.
Operation does not merit expense.
Initial high cost. We are all set up to maintain high speed knives.
Hesitation to invest that amount when accident to planer knives would be very expensive.
Initial cost and the danger of breakage (old machinery in rough end).
Plan to install new 36″ facer and planer—possible carbide then.

Breakage or damage problems—9 replies
Frequent grinding required due to grit & other particles in or on material being planed.
We are using carbide knives on shapers but feel that carbide would break on conveyor fed planer as occasionally a piece goes crossways.
Too expensive because of foreign steel in work to be planned.
With the exception of planer knives, our plant is almost 100% carbide on all other cutting & shaping tools.
They will not withstand severe shock on our pine lumber.
Too brittle for use in peeling large fir logs.

Service and maintenance—10 replies
Unable to get dependable service.
No grinding or sharpening facilities available.
Steel does very well and can sharpen them in our shop.
Our filing room is set up for steel knives.

Sales factors—5 replies
No one has tried to sell us any.
No representative has called to discuss merits of carbide planer knives.
Haven't been sold as yet.
The machines came equipped with steel.
No reason—salesmen push hi-speed.

Preferences or practices—17 replies
We are in process of selling surfacer to replace with molder.
Probably will consider carbide sidehead knives.
Will do so when we replace present equipment.
Never had experience with carbide.
Have too many steel knves in stock to consider change.
No reason.
Just beginning to use carbide saws.
Steel has been satisfactory.
Plan for greater use in future.
We use many carbide router bits but have not explored the possibilities of planer knives.

Inappropriateness—30 replies
Only have small requirements for carbide shaper knives.
We do no planning operations.
We plane rough oak principally for pallets. Doubt advisability change in view of cost.
We do not have any planers in our plant.
We purchase all wood components.
Have not thought it practical.
Production not great enough.

What Of The Future?

The study indicates that our readers will make considerably greater use of carbide cutting tools in the future. Approximately 80% of the saw blade users, 63% of the carbide cutterhead users and 73% of the plants using router bits report that they plan to expand their use of carbides. Individual comments illustrate that some are setting up programs to replace steel, while others want to experiment in areas within their plants where carbides have never been tried.

Benefits reported by all groups using carbide cutting tools included: more production, faster speed, better work, improved product, smoother cuts, longer life and low cost and savings in labor and downtime.

Most of the respondents showed by their replies that they were more than willing to evaluate carbide cutting tools for their operations. However, before they can use carbides to the best advantage for their varied needs, several areas need improvement or verification:

Carbide Application and Performance

Aside from general advantages, woodworkers need to know how carbides can be applied to their own specific operations, More carbide salesmen with engineering know-how and the willingness to take the time to apply it will help to solve many of the problems indicated in the study. Another part of the answer is to be found in more clinic-type demonstrations and educational sessions in strategic geographic locations.

Carbide Maintenance

Many plants are equipped to maintain steel but not carbide cutting tools. Some indicate that local "outside" carbide tool maintenance services are non-existent, unsatisfactory, or too expensive. Tool manufacturers and their representatives could do much to encourage better sharpening facilities and refer carbide users to them.

On-The-Job Training

Proper protection, storage and handling of carbides, along with better technical understanding of applications, grades, etc., is greatly needed. Another article in this issue, "Protecting Your Investment in Carbides," will be helpful in providing information on storage and handling.

Other areas needing development may be singled out. However, each woodworking executive needs to examine his product, raw material, production run and related factors, and from his end seek out advice of the professional carbide application engineers who are already available. Most carbide manufacturers are already staffed to give such advice to firms who are sincerely looking for this help.

While a few problems will undoubtedly remain unsolved, we strongly believe that sales-engineering, trouble-shooting help of this caliber will enable an increasing number of woodworkers to benefit from the advantages of carbides. □

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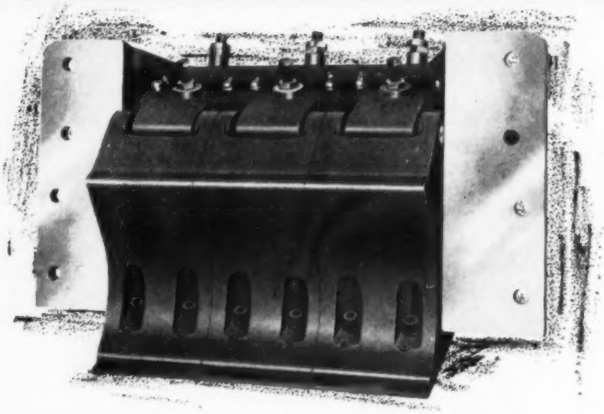

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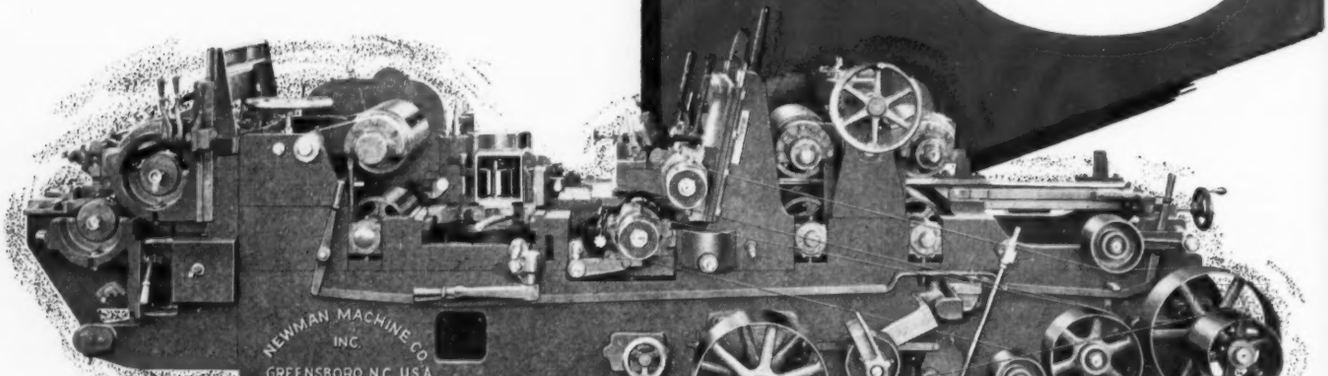
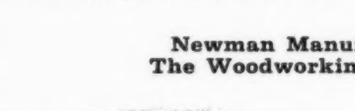
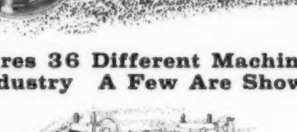


WOODWORKING MACHINERY MANUFACTURERS' ASSOCIATION — WMMA

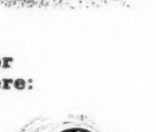
Newman Manufactures 36 Different Machines For The Woodworking Industry A Few Are Shown Here:



M-55 Feed Table



M-68 DMD Planer-Matcher



G-20 Automatic Knife Grinder

Sonic Detection of Blisters

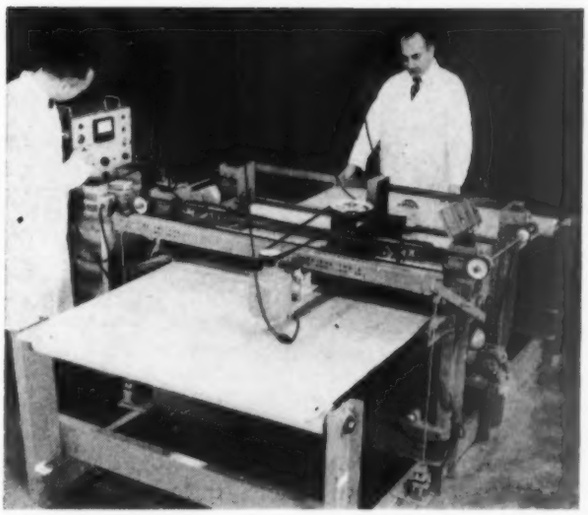
In Plywood and Other Bonded Materials

This research indicates that hidden blisters and defective glue bonds in bonded materials can be detected by changes in audio frequency vibrations at the location of the flaw.

By D. G. Miller

Forest Products Laboratory

Ottawa, Canada



While a great deal has been done to improve production techniques and reduce the formation of blisters in plywood, the efforts have been handicapped because of difficulty in discovering hidden blisters. A hidden blister is not visible outwardly, but causes the plies to separate wherever the glue bond is defective. This can result in objectionable swelling on the surface of the plywood after it is in service.

It may not be possible to eliminate formation of blisters entirely, but if there were an automatic device of some sort which could rapidly inspect the panels, we could prevent defective panels from reaching the consumer market. This means of discovery could also be used to study production methods where blisters occurred with the aim of improving or changing techniques.

There are several causes for hidden blisters: (1) In the production of hot-pressed plywood the defective bond is usually caused by steam from an area of higher moisture content in one of the plies. (2) Variations in veneer thicknesses can cause blisters. (3) Non-uniform glue spread and resin pockets may also be responsible.

Research Work Begun at Ottawa

Work was begun about two years ago at the Ottawa Laboratory of the Forest Products Laboratories of Canada. Result of the investigation indicates that hidden blisters and defective glue bonds in bonded materials can be detected by changes in audio-frequency vibrations at the location of the flaw. At feed rates of 100 f.p.m. or more, satisfactory results were obtained even in the midst of competing mill noises.

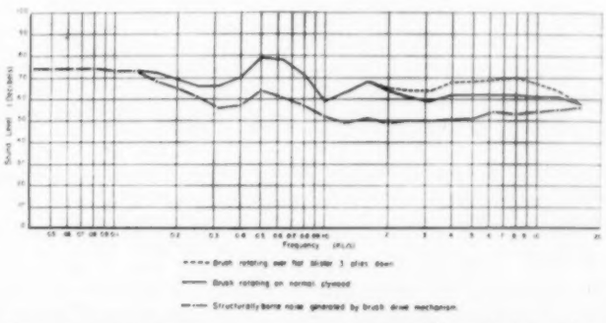


Figure 1. Spectrogram of brush sound from ¾" sanded Douglas fir plywood.

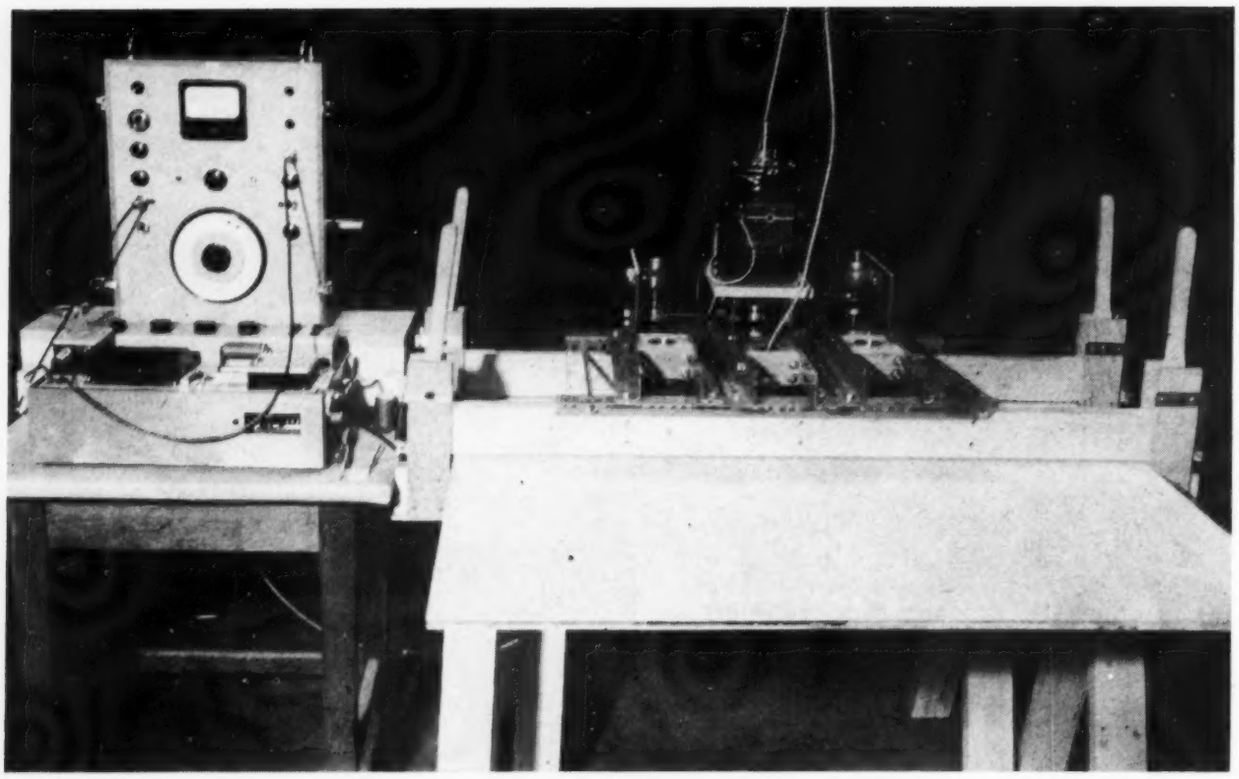


Fig. 2. Apparatus for investigating the effect of adjacent brushes.

The approach for this research was one based on the fact that when the surface of a plywood panel containing a blister is rubbed or brushed, the sound produced as the brush moves over a blistered area is slightly different to the ear from the sound produced over an area of normal glue bonds. To investigate this approach, it was necessary to obtain frequency spectograms of the sounds produced when samples of normal and blister plywood were stimulated into vibration.

Test Material

Most of the work was done on Douglas fir plywood panels with thicknesses varying from ¼" to ⅜". As might be expected, the most difficult blisters to detect in these panels were those between the innermost plies of ⅜" plywood.

A small paint brush, with its bristles cut very short, was used in the first experiments. A brass weight at the top of the brush held the unit close to the surface as it moved along a vertical shaft which was rotated by a small electric motor. A microphone was mounted near the brush, and the spectograms of the sound produced by normal and blister plywood were made by passing the output from the microphone through a Bruel and Kjaer (B & K) spectrometer Type 2109 to a B & K level recorder Type 2304 with a 50 decibels (db) logarithmic potentiometer. These spectograms show the level of each frequency in the brush sound.

To improve the method of generating and picking up the brush sound, the microphone was mounted in the center of a ring type brush (such as those used on domestic floor polishers) and the brush was rotated by means of three loose fitting pins projecting down from a driven wheel above the brush. Following this change, there was a noticeable improvement in the reproducibility of the spectorams and a slight difference in the sound spectra of the normal and blister plywood started to become apparent.

Between 2000 and 16,000 cycles per second (c/s) the level in the spectogram of blister plywood was consistently higher than in the case of normal plywood. The difference in levels appeared to be at a maximum at about 8000 c/s. This meant that a *positive* indication of the blister could be obtained from an increase in the level of the 8000 c/s component of the brush sound (Fig. 1).

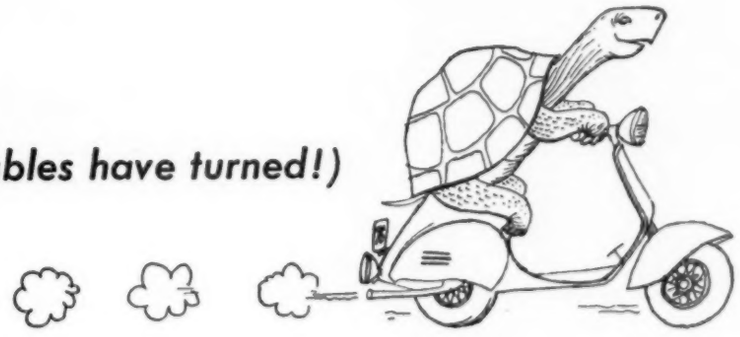
Like many industrial plants, plywood mills are usually noisy. On the other hand, the level of sound generated by the brush is not very high only the 8000 c/s component of the brush sound is used by the detector.

To investigate the effect of plant noise, sound level measurements and tape recordings were made of the noise in a hardwood plywood plant at a location where a blister detector might be installed. The recordings were then played back in the laboratory and amplified until the level of the 8,000 c/s component of the recorded plant noise was, so far as possible, the same as in the plant.

The results of these tests indicated that plant noise would reduce

Have you heard this one about the Tortoise and the Hare?

(or: how the tables have turned!)



Of course you know the old fable about the tortoise and the hare . . . the rabbit was so confident he'd win that he took a siesta under a tree — and old "slow but steady" turtle won the race.

But that *is* a fable when it comes to wood furniture — because "slow but steady" isn't good enough for today's furniture manufacturer whose profits can be made or lost in his cost accounting. What his manufacturing methods and his furniture products *really* require is the slogan "fast but steady".

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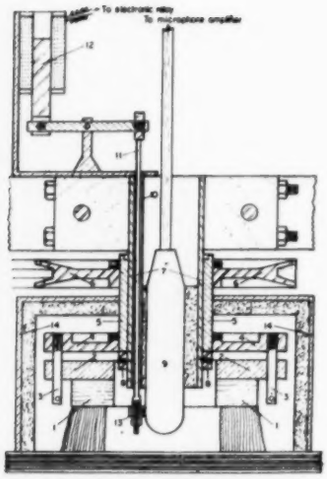


Fig. 3. Center section of brush assembly and marking device.

the sensitivity of the detector as was anticipated, but to a much less extent than had been expected.

Effect of Brush Conditions

While investigating the effect of the speed of rotation on the brush, it was found that the level of the brush sound increased about 10 db when the speed of the brush was increased from 100 to 400 r.p.m. Conclusion was that there is no apparent advantage of a higher speed so far as the relative signal strength is concerned, but if necessary this signal strength could be maintained in noisier surroundings by increasing the brush speed.

The type of bristle used in the brush did not appear to be a critical factor in the performance of the detector. The main requirements of the bristles are that they be durable yet reasonably soft.

In order to obtain a high rate of inspection, an industrial plywood blister detector would probably have a number of detector units mounted in a row across a 4′ width and each would operate independently as the plywood moved through the machine. Tests made (Figure 2) indicated that the brush sound from two adjacent brushes did not seriously affect the sensitivity of the detector and the results indicated that it would be feasible to have a number of detectors operate in close proximity to each other.

Marking Device

When the detector passed over a blister there was an increase in the 8000 c/s signal from the amplifier and this increase was indicated on a meter. For industrial automatic operation, it is necessary to provide a marking device which would be actuated by the increase in the signal. An electronic relay was constructed which rectifies the signal and applies it to the control grid of a thyratron. A relay in the anode circuit becomes energized when the signal reaches a preset level. This relay can be used to operate a marking device. The microphone amplifier and the electronic relay are adjusted so that the relay operates only when the level of the 8000 c/s signal increases about 4 db above the level for normal plywood. A pencil is mounted on the end of a thin rod which is mechanically linked to a solenoid. The rod is located beside the microphone inside the hollow shaft in order that the mark will be made right on the blister.

An improved rotating brush assembly is shown in Fig. 3. The ring shaped brush (1) has a circular weight (2) fastened to its top. The brush and weight are rotated by metal pins (3) extending through the weight and fastened to a drive wheel (4) which is secured to a sleeve (5). The sleeve is fastened to a pulley (6) which is rotated by a belt to a small electric motor. The sleeve (5) rotates on a shaft (7) and is held up by the collar (8) fastened to the shaft. The shaft is securely clamped at its upper end to supports which hold the assembly above the plywood. The microphone (9) is mounted on soft rubber inside the shaft. A metal tube (10), also inside the shaft, supports a rod (11) which is mechanically linked at the upper end to a solenoid (12) and at the lower end to a marking pencil or pen (13).

The brush and its weight, which are free to move vertically along the length of the driving pins (3), are supported by the plywood being inspected. The metal cover (14), which is lined on the inside with sound-absorbing material, encloses the brush but normally does not rotate.

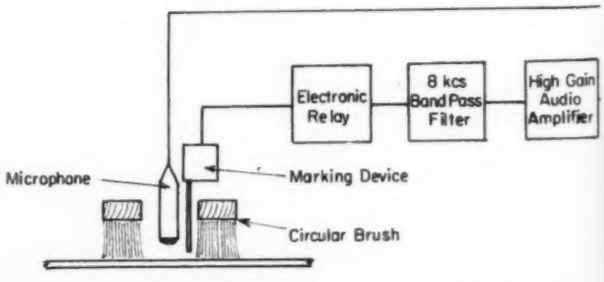
Operation of Sonic Detector

The operation of the sonic blister detector is illustrated in Fig. 4. When the brush rotates on the plywood some of the sound produced is received by the microphone and is converted into audio-frequency electrical energy. This energy is amplified more than a billion times and is passed through a filter which allows only the 8000 c/s band to pass through. The output from the filter is fed to the electronic relay which is adjusted so as not to operate when the brush is rubbing on plywood with normal glue bonds. A hidden blister between the brush and the central ply causes an increase in the level of the 8000 c/s component of the brush sound. This increase causes the electronic relay to operate and a mark is made on the plywood surface over the hidden blister. *However, depth of detection is limited to the center ply, and therefore the plywood must be inspected from both sides.*

After completing the experimental work, it was necessary to develop a laboratory machine. This machine is a one detector unit which scans the plywood as it moves through at the rate of 6 f.p.m.—a feed speed too low for commercial use. (See Figs. 5 and 6.)

The scanning mechanism is driven by a small 3-phase motor which is capable of rapid and frequent reversing. Limit switches at the ends of the scan cause the motor to reverse. The machine is equipped with a device to lift the brush assembly when there is a

Fig. 4.



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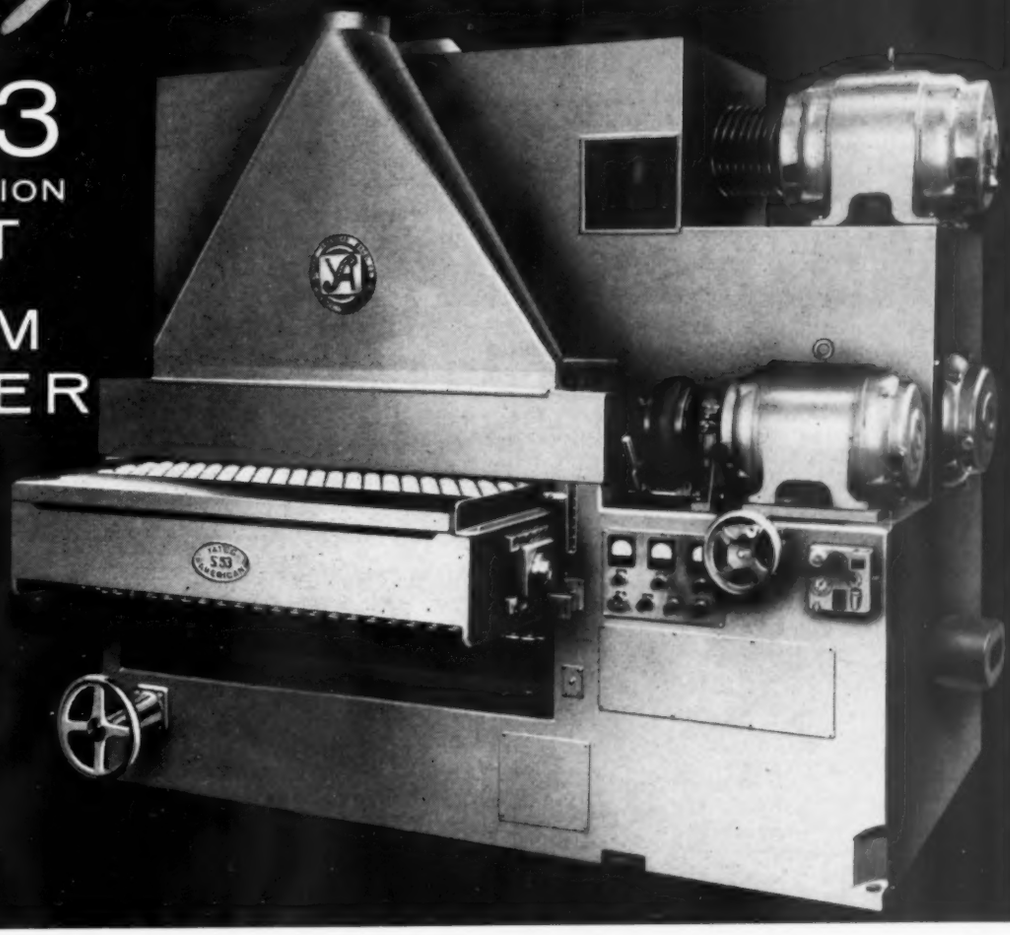

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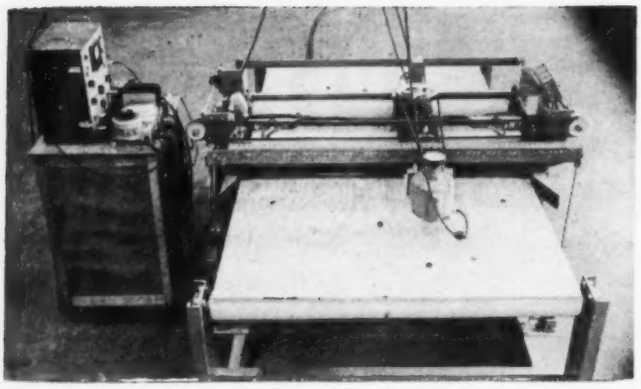


Figure 5. Laboratory model of plywood blister detector—with 4' x 8' panel—infeed end.

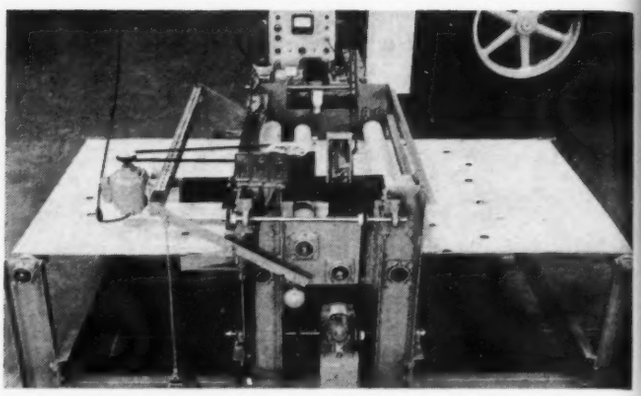


Fig. 6. Side view of laboratory model of plywood blister detector.

large gap between successive panels passing through the machine. A photo-electric relay system switches off the marking circuit during the time that the gap between successive panels passes under the sound cover.

Effect of Knotholes

Canadian Standards Association Specification 0121-1957 for Douglas fir plywood permits the inner plies of all grades except marine to contain knotholes not larger in least dimension than 1". Tests made with the laboratory machine on panels containing knotholes in the inner plies indicated that the detector *would not respond to open knotholes below the second ply and would respond to those directly beneath the face ply only when the rate of movement of the detector over the plywood was slow in relation to the time constant of the electronic relay.* In other words a 1" knothole in the second ply gave a strong signal which would trigger the relay if the brush continued to rotate above the knothole. However, if the brush moved fairly quickly over the knothole, the signal produced, though strong, was of too short duration to trigger the relay.

Effect of Thickness and Surface Condition of Plywood

Both sanded and unsanded Douglas fir plywood panels of different thicknesses were run through the laboratory machine to determine the effect of the thickness and the surface condition of plywood on the performance of the machine. The level of the 8,000 c/s component of the sound produced when the brush was rotating on thinner plywood was higher than when the brush was rotating on ¾" plywood and, because the number of plies in thinner panels is less, a stronger indication of blisters was usually obtained when testing thinner panels. This change in the normal level of the 8,000 c/s component caused by a change in the thickness of the plywood can be compensated for by simply adjusting the gain of the audio-frequency amplifier.

Tests made on the unsanded plywood showed that the rough surface only slightly reduced the sensitivity of the detector.

High Speed Inspection of Plywood

An industrial plywood blister detector could be designed to mark the location and approximate size of each blister. Machines of this type would be installed after each sander and would have a feed rate of about 30 f.p.m.

An alternate arrangement would be to use one high speed detector—with a feed rate of about 100 f.p.m.—after trim saws. Such a detector would merely mark panels which had blisters. These panels could then be fed through a slow speed machine which would mark the location and size of each blister.

The rate of scan of the laboratory model is at least 100 f.p.m. and the successful operation of this machine thus establishes the technical feasibility of blister detection at high rates of feed. Furthermore, after the laboratory machine had been tested, it was found that when the brush was scanning at 100 f.p.m., *but not rotating,* the relative motion of the bristles along the grain of unsanded ¾" Douglas fir plywood provided sufficient excitation to detect under laboratory noise conditions, a 6" blister between the innermost plies.

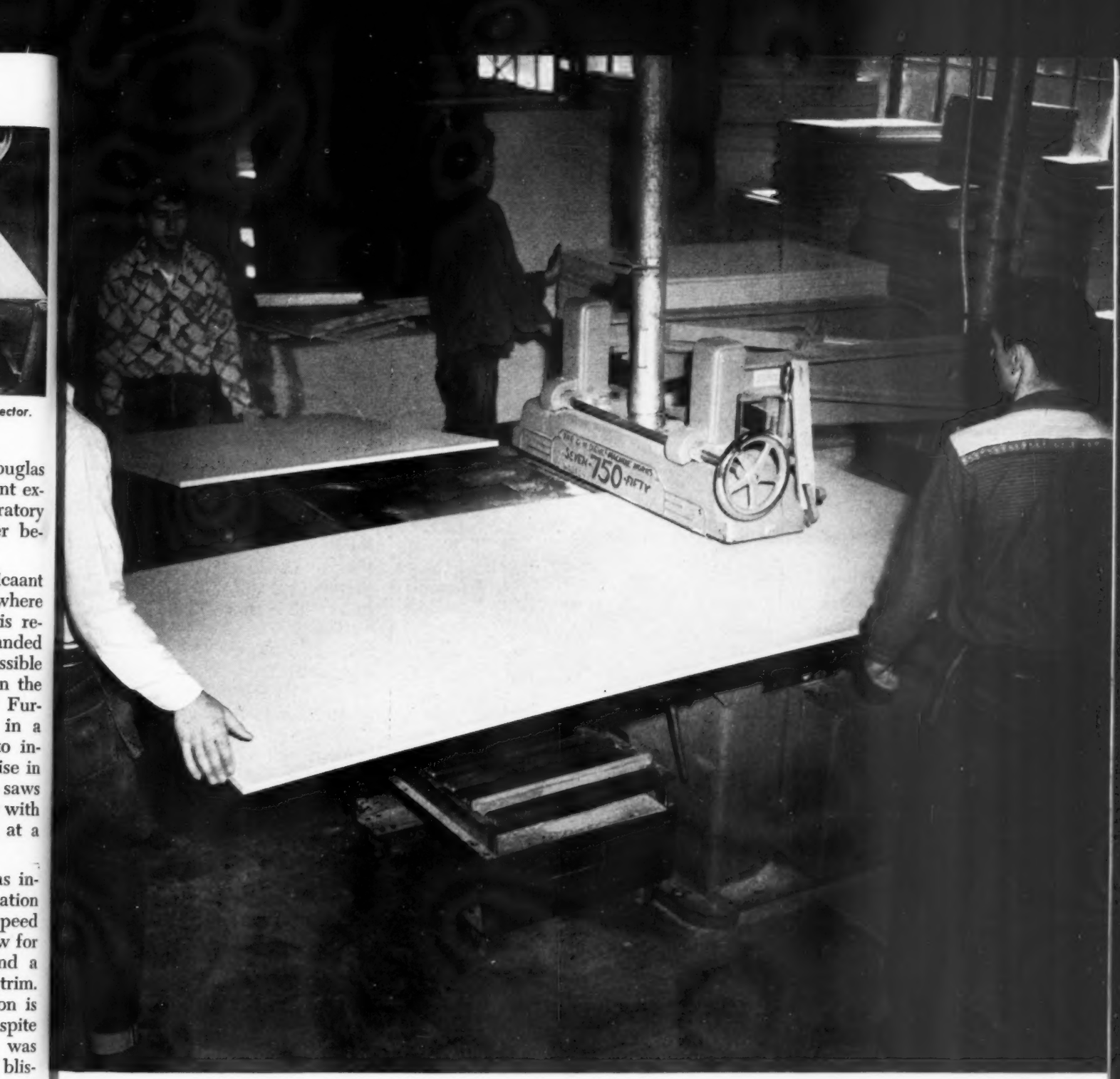
This result is very significaant because at the trim saws, where the high rate of inspection is required, the panels are unsanded and it may, therefore, be possible to use non-rotating brushes in the high speed industrial model. Further tests have been made in a Douglas fir plywood plant to investigate the effect of the noise in the immediate vicinity of trim saws on the sensitivity of a detector with a stationary brush operating at a high rate of speed.

The laboratory machine was installed and operated at a location within a few feet of four high speed plywood trim saws, a slash saw for cutting up plywood trim, and a hopper for grinding plywood trim. The noise level at this location is belived to be over 100 db. In spite of the noise, when the brush was scanning but not rotating, 6" blisters 3 plies down in ¾" fir plywood could readily be detected, and by increasing the sensitivity it was possible to detect a 6" blister 3 plies (i.e. ½") down in a 7-ply 17/16" fir panel.

If the brushes on the high speed machine need not rotate, it then becomes a much simpler matter to design a brush system to operate on the underside of the plywood, and the machine could, therefore, inspect both sides of the plywood simultaneously.

Portable Blister Detector

The original project on blister detection was directed towards the



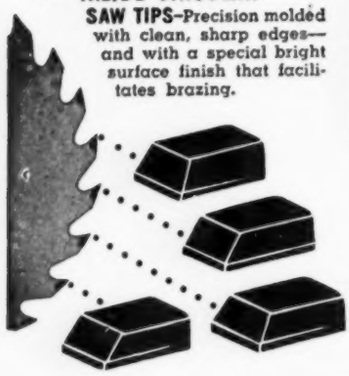
Seven out of ten. Of the hundreds of straightline or glue joint rip saws in use today, the one you're most likely to see in any mass production plant is the Diehl No. 750 Rip Saw. In fact, fully 70 per cent of such plants have one or more No. 750's in operation. The reason for this overwhelming preference is simple: Woodworking men have learned from experience that the Diehl No. 750 has no equal for accuracy and durability in high-speed ripping. If you'd like to see for yourself what No. 750 can do, your Diehl representative will arrange a demonstration in a nearby plant.

Standard of Comparison in the Woodworking Industry

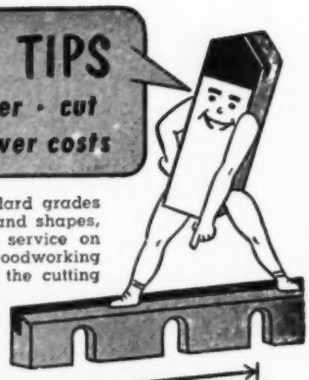
THE G. M. DIEHL MACHINE WORKS, INC., Wabash, Indiana

Diehl

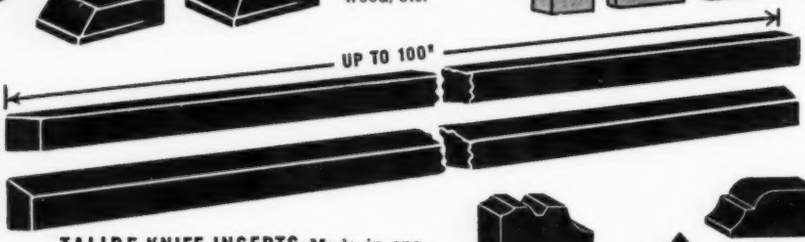
TALIDE CIRCULAR SAW TIPS–Precision molded with clean, sharp edges—and with a special bright surface finish that facilitates brazing.



TALIDE TIPS
stay sharper · cut longer · lower costs



Available in 5 standard grades and in many sizes and shapes, for high production service on every type of woodworking operation, including the cutting of insulation board, hard board, fibres, plastics, laminated wood, etc.



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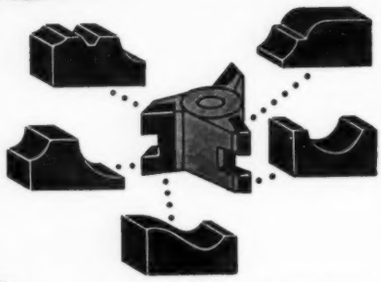
Metal Carbides Corporation, 6001 Southern Blvd., Youngstown 12, Ohio



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OVER 25 YEARS' EXPERIENCE IN TUNGSTEN CARBIDE METALLURGY

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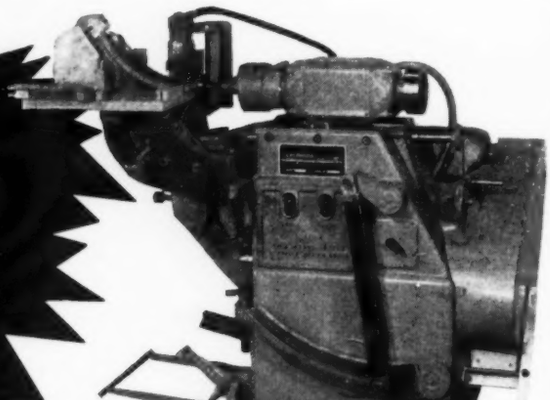
Preformed to accurate tolerance with minimum stock—and to any form or shape desired.

NOW . . .
compound angular set-ups in less than ONE MINUTE!



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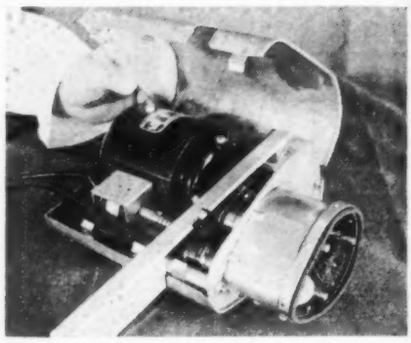


Fig. 7. Portable detector.

development of an automatic device for rapidly inspecting flat plywood. Defective glue bonds can occur in other plywood products and other multilayer materials such as molded plywood boat hulls, furniture panels, honeycomb constructions, laminated products, and various combinations of metals, plastics, and wood. For the inspection of these materials, a more versatile type of detector is required which need not be automatic, nor particularly rapid, but which should be able to operate in any position on both flat and moderately curved surfaces. It should be more in the nature of a portable hand tool.

To meet this requirement, the Ottawa Laboratory has developed the portable detector shown in Fig. 7. Except in certain details the construction is similar to the detector unit in the laboratory machine.

Patents covering this method of flaw detection and the device involved have been applied for in Canada and the United States. A license to manufacture commercial blister detectors has been granted by Canadian Patents and Development Ltd. to Argus Engineering and Development Limited, 8638 Ash St., Vancouver 14, B. C.

Questions Answered

QUESTION: Can the machine be adjusted so that permissible defects in the inner plies such as knotholes will not be picked up and marked as blisters?

ANSWER: Yes, the sensitivity of the detector can be adjusted to overlook permissible knotholes.

QUESTION: Does the operation of the machine vary species or resonant frequencies?

ANSWER: Resonant frequencies are not involved in this method of

flaw detection and the species of wood in plywood does not affect the detector's operation.

QUESTION: How do you explain that?

ANSWER: A blister causes a local change in the acoustic impedance of the plywood which results in an increase in the amplitude of the higher frequencies in the sound generated by the brush. This phenomenon does not seem to be affected by the modulus of elasticity of the material being inspected, at least not over the range of elastic moduli normally encountered in wood. The response of the detector is due to the increase in the amplitude of the higher frequencies and not to any resonant frequencies.

QUESTION: Will this machine require much servicing?

ANSWER: Since the mechanical construction of an industrial model would be quite, simple, and electronic components are not complicated, very little servicing should be required.

QUESTION: What is the minimum size of blister that the detector will pick up?

ANSWER: The laboratory machine has detected blisters slightly under 6" in diameter, between the innermost plies of 7-ply ¾" fir plywood. The portable model, because of its smaller brush, can detect somewhat smaller blisters.

QUESTION: Will the detector pick up a very low quality bond, but one that is not a delamination?

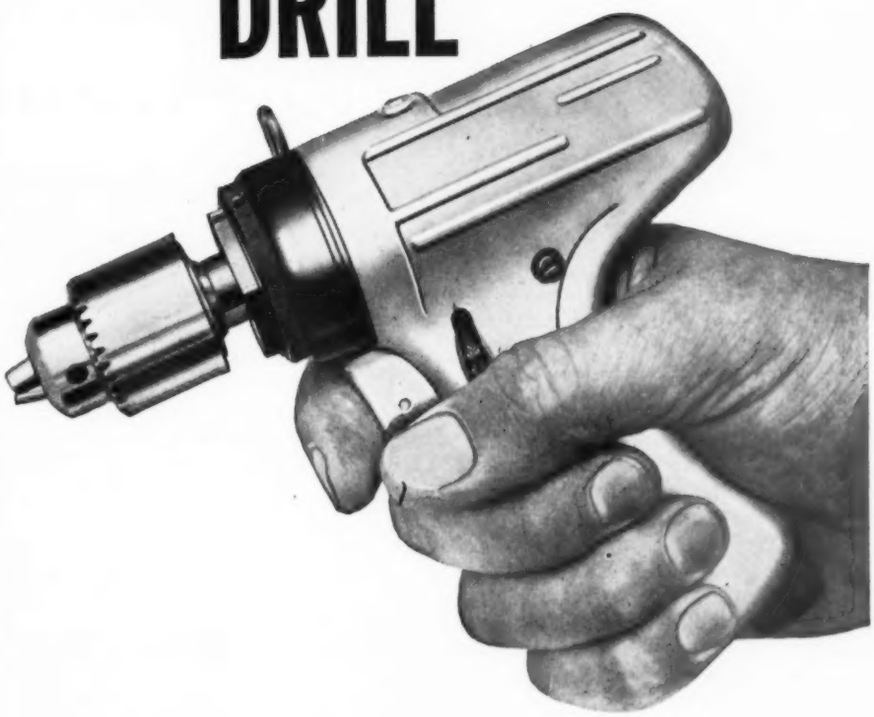
ANSWER: No, the detector will not respond to a weak but continuous bond.

QUESTION: Will this device detect the presence of rough core where the bond occurs only on the high spots?

ANSWER: The detection of this condition has not been investigated. However, if the spaces between the ridges are larger, the detector probably could pick up the spotty bond. Incidentally, tests did reveal that it will detect an area of ring shake in a face ply. □

This article is a condensation of a paper presented at a FPRS meeting, Pacific Northwest Section, in 1959 and reproduced with permission. The greatest application, perhaps, for this detector is in the large West Coast plywood mills.

THIS HANDY AIR DRILL



a typical Gardner-Denver cost-cutter

Here's a handy, lightweight Gardner-Denver air drill to speed production and cut costs. Powerful air motor provides variable speeds. Compact, well-balanced design permits easy handling in even the most awkward positions. And this air drill is fire-safe—can't spark, can't short. Should the drill load up with chips, no harm is done because the air motor can't burn out. Either straight or angle models available.

This drill is typical of Gardner-Denver's complete line of production-ready air tools. They're all designed for the utmost in versatility and interchangeability. A Gardner-Denver air tool specialist will gladly give you details on the wide variety of woodworking applications. Write for bulletins.

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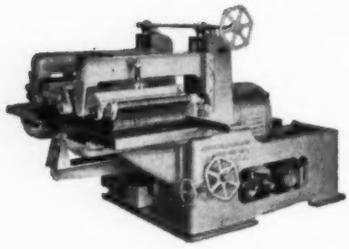
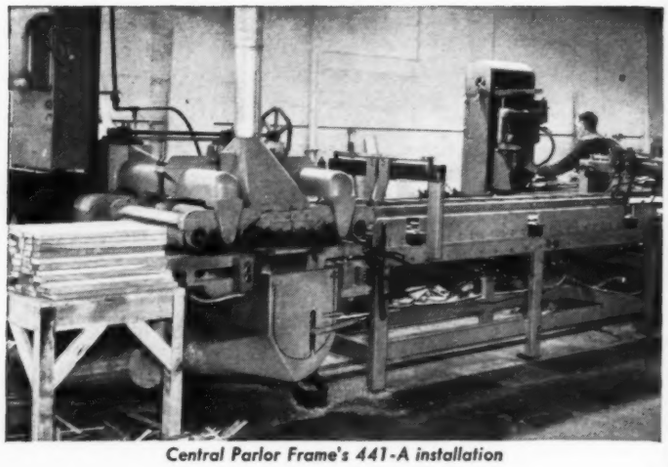




Central Parlor Frame's 441-A installation

PRODUCTION DOUBLED

in 7 MONTHS...

...with Mereen-Johnson 441-A Heavy Duty Gang Rip Saw

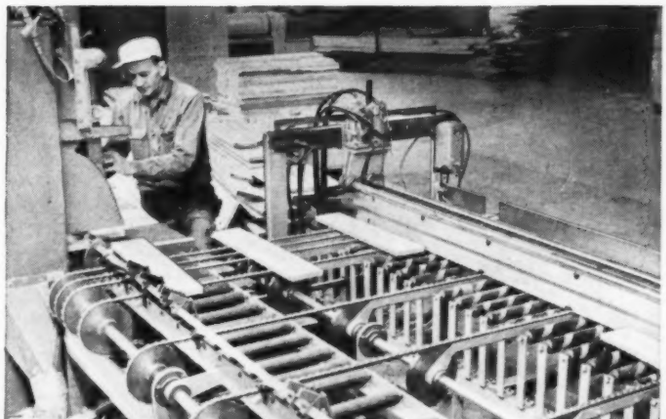
"Our Mereen-Johnson 441-A Heavy Duty Gang Rip Saw has already more than doubled production since its installation", says Carl Ahlquist, partner in the Central Parlor Frame Company of Minneapolis.

"We are getting more work out of one man running our 441-A Rip Saw than we got from two men working our old machine and this man also cuts. Although we've only had the machine seven months, we estimate that our 441-A operator can produce more than three times the work it took two men previously.

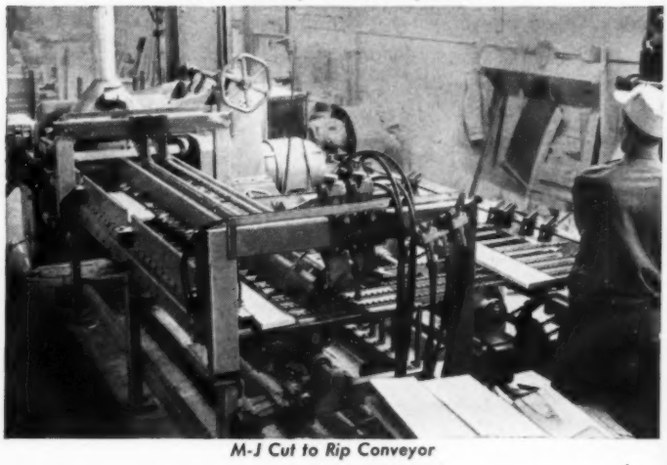
In their eight-man shop, the Central Parlor Frame Co., designs, cuts and assembles all types of furniture frames. They receive the design and job specifications from furniture and upholstering wholesalers or may design the piece themselves.

"Before we had the M-J 441-A," stated Mr. Ahlquist, "we were coasting along with a straight-line rip saw working overtime to keep up. We installed the M-J Gang Saw and realized what we had been missing all these years. In a short time we had a two-fold increase in production and still haven't reached a maximum efficiency level yet.

"The Mereen-Johnson 441-A Heavy Duty Gang Rip Saw has given us uniformity of pieces being ripped. There is less manual handling involved too. The increase in production will more than pay for the machine. Believe me, the 441-A has definitely cut time and costs above and beyond that we had anticipated . . . and by no means have we seen the end!"



Cut off and Rip—one man operation



M-J Cut to Rip Conveyor

Write to Mereen-Johnson on your company letterhead for your copy of the M-J 441-A bulletin.

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Diversification Plus Modern Tools Doubles Sales At Southwestern Glass and Millwork

Corner pinning shelves which is done in 1/3 of a second. Wood is not damaged from hammer marks.

■ In 1957 Southwestern Sash & Door Company in El Paso, Texas, was producing doors and windows to serve the southwest. In 1958 the millwork department had swelled from 11 to 39 men producing a wide variety of cabinet work and specialty wood products. The name was changed to Southwestern Glass & Millwork Co. to cover their expanded line.

This same year, Southwestern installed a completely modern pneumatic system with air lines and compressors to serve newly purchased sanders, a glue spreader, pinners and staplers.

One year later, production of this same crew of men was virtually doubled to keep pace with the rising sales volume of a wide range of products. School cabinets, prefabricated closets, and complete kitchen counters are but a few of the new items. Because many of their sash and door customers were prospects for these new items, Southwestern was able to diversify without changing the sales organization or structure. This is very important for companies planning new products, according to the officers of the parent O'Malley Company.

Equally important is the matter of reducing cost by using latest equipment. Being more or less wed to the forest products industry by lumber yards and millwork shops across several states, the O'Malley Company feels that competition of metal and synthetic products forces them to continually improve efficiency. They recognize that wood products must meet competition to hold and expand their markets.

The pneumatic equipment installed by Southwestern has exceeded both the manufacturers' estimates and those of their own mill superintendent, Robert J. Lehrer. To increase production two-fold with the same work force was unexpected!

The corner pinner shown on the cabinet is an excellent example of the right tool cutting costs to a fraction. In the past, the finest carpenter very carefully drove a finishing nail part way into the corner at a 45° angle. Then a nail-set was used to drive it the rest of the way and countersink the nail. This pneumatic pinner shoots a heavy pin up to 1½" long at precisely the right angle in one-third of a second. Countersink is automatic. No predrilling is needed in hardest woods. No bent nails, no costly materials ruined by hammer marks. Blind pinning of shelves was transformed from one of the hardest jobs to the easiest for unskilled labor.

Another example of double time-saving is shown where the shelves were face-stapled on a cabinet to be butted up against another. With hammer and nails a jig was needed to keep the cabinet from creeping under the hammer blows. With a recoiless pneumatic gun the staples are shot into the cabinet which is then slid along the bench top to the next operation.

The pneumatic sanders had plenty of power to do a beautiful finishing job on the cabinets and other pieces turned out by Southwest. Convenient air outlets made every station a possible sanding spot, depending on the products coming along the line.

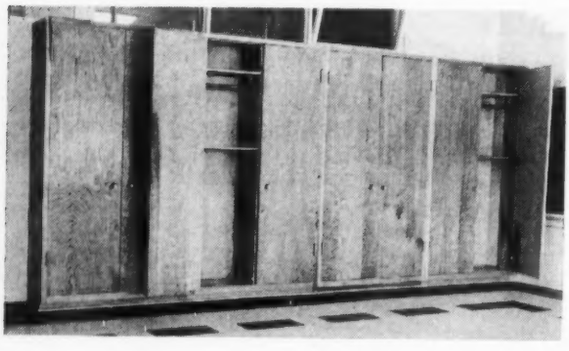
Portable pneumatic tools give flexibility, especially where the

No pre-drilling or nailsetting is needed. Divergent-chisel staples drive through hardest wood and won't fishtail through narrow shelves

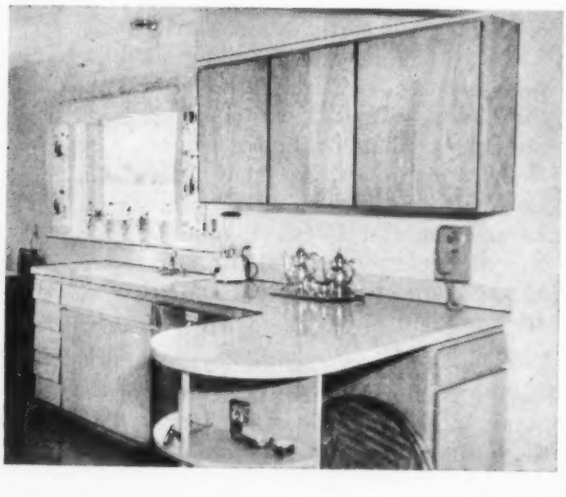
New El Paso plant of Southwestern Glass and Millwork Co.

Prefabricated kitchen cabinets are new products for Southwestern.

This closet with built-in drawers is also a modular unit.



Closet wall which is made up of modular closets. These are sold for homes, schools and public buildings.



Countertops have been added to Southwestern's line of products.

product manufactured is continually changing. The production line can be altered to fit the products.

Pneumatic glue spreaders applied the adhesive more evenly in a fraction of the time required for previous manual application. The results, surer gluing, while labor force and amount of glue used were reduced.

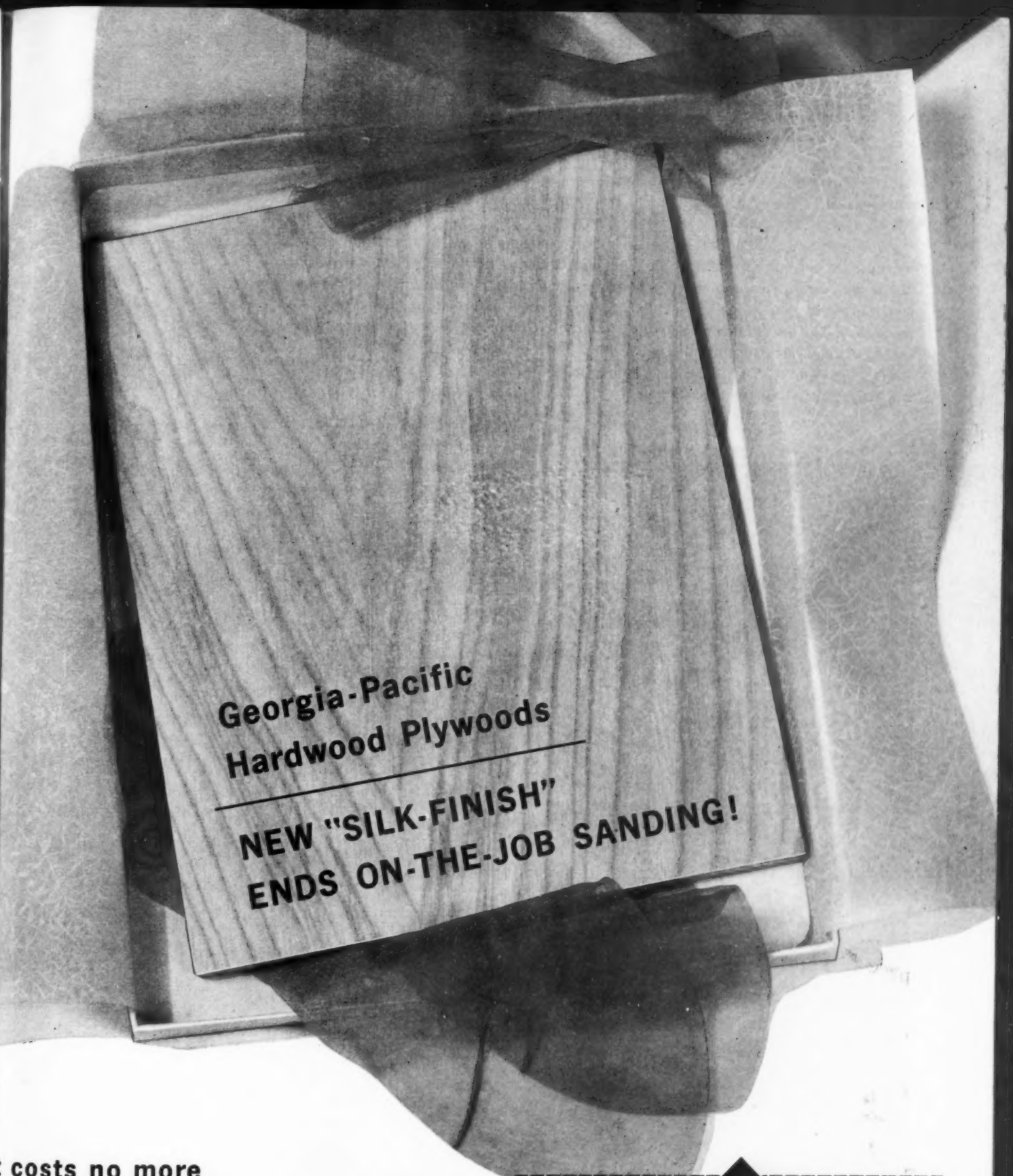
Robert J. Lehrer says the dependability of the pneumatic machines is very important. The failure of a tool can tie-up an assembly line and waste the time of every man on the line. Pneumatic tools are especially desirable from this viewpoint: there have been no work stoppages because of mechanical failure. The stapling and pinning machines have driven hundreds of thousands of fasteners with only normal care and oiling.

Daily removal of moisture from the airline and use of a good moisture filter and oiler is essential to good service of a pneumatic tool. To ignore these two factors is like running an automobile without oil and a handful of sand in the transmission. Presence of moisture in air lines wears and corrodes cylinder walls. The pistons of air tools move back and forth with incredible speed. They need a clean lubricated surface. Oddly enough many of these tools use only a few drops of oil a day, but this is the difference between long trouble-free service and costly shutdowns.

Some of the men in the shop like to point out that they increased production with the addition of a little "hot air." Mr. Lehrer doesn't joke about his new air equipment—reducing costs is a serious job to him. He points out that it's really "cool air" and his crews are a lot more comfortable during the hot El Paso summer now that the air tools do the work.

Now 1960 looks like another big year at Southwestern Glass & Millwork. Already the sales crews are lining up contracts for new lines of quality wood products of all types. Mr. Lehrer and his crew will continue their search for new equipment and methods to speed up production and reduce costs. □

Photographs and data in this article have been supplied by Spotnails, Inc., Evanston, Ill.



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around the shop

This monthly feature answers readers' questions on common shop problems. If you wish to present a problem, or desire further discussion of problems discussed here, write to the Editor.

Can We Get Better Results?

We peel softwood veneer and have been advised better results could be obtained with the use of roller nosebars. Will you please comment on this?

Roller nosebars are used more in cutting softwood veneer than hardwood veneer. Their chief advantage is allowing closer cutting to the chucks to leave smaller cores. The roller nosebar moves with the log or block surface, rather than dragging on the veneer like the conventional nosebar, and operates to compress the wood directly ahead of the knife-cutting edge. A roller nosebar type reported to permit cutting closest to the chucks revolves by contact with the rotating log or block and is not motor-driven like other roller types.

Can We Chuck This Joint?

We use a tapered round tenon formed by chucking in many of our chair constructions. A tentative order for a new style chair requires a tight fitting joint flush to back and front posts. We can produce this joint by boring the ends and doweling, but would prefer to chuck it. Is there a special chuck designed for this type of joint?

A special chucking head designed for this purpose is used in many plants. It is called a square-face chuck and cuts tenons on the end of square or oblong stock without breaking down the square shoulders to present a flat and square shoulder for joining square or at an angle. This chuck features two outside cutters opposing each other in the face of the chuck, in addition to inside chucking cutters. These cutters operate to cut around the tenon ahead of the inside cutters to relieve stresses produced by angular cutting.

How To Install Baffles

We are considering the use of sound absorbing baffles around our major noise-producing machines located in a relatively open area. What is the usual method of installing these baffles?

For a sound-absorbing baffle panel installation it is customary to string support wires across the machine area at the desired height. Turnbuckles are usually provided at each end of each row to permit take-up required at intervals to prevent sagging. No. 9 wire is usually recommended for single rows. Hangers are formed for the baffle panels from short lengths of wire at each top end. These are fastened to the panel with a double wrap of pressure sensitive tape over the wire, sometimes stapled to the panel to prevent slipping.

If you will use sound absorbing discs supplied commercially as "Cones of Silence," these units incorporate hanging loops in their rim for suspension from the ceiling on tie-wires to the desired height. Tie-wires may be any length required to clear obstacles and reach into the high noise level area where noise reduction treatment is required.

For spot locations, such as you describe, baffle panels are sometimes suspended in tiers, one below the other. Sound absorbing discs may be similarly suspended from the ceiling to overhang the machine at alternating heights rather than one below the other. Baffle panels are generally used in rows 5'-6' apart. Closer spacing does not produce enough additional noise absorption to warrant the added expense.

In construction commercial sound absorbing panels are generally rigid panels, about 24" x 48" and ½" thick, completely enclosed by a plastic, lightweight, noncombustible covering film. The plastic surface acts like a drumhead to transmit noise picked up by vibration into the panel center where tiny cell of fibrous glass insulation exerts a damping effect.

How To Make Lighting Survey

I have been given an assignment to make a lighting survey in our plant. While I understand the use

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For heavy-duty millwork, cabinet shops, building trades . . . for fine finishing or fast rough sanding . . . see these professional Belt Sanders at your Porter-Cable dealer.

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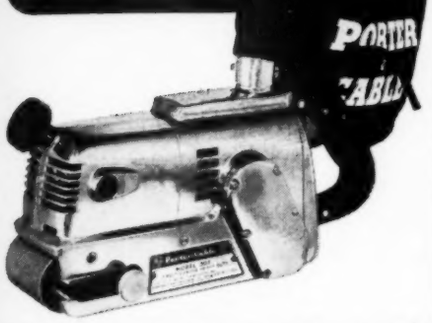

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NOW—any old sander is worth $30.50 in trade on a new Model A-3 or Model 503 Porter-Cable Belt Sander.

Model A-3, reg. $130.00
Trade-in allowance 30.50
NOW... Costs you only $99.50

Also, for example: Model 503, regularly $160.00 now costs you only $129.50 with trade-in allowance.

If you're wasting valuable time with a sluggish, beat-up sander... if you are holding up production with breakdowns . . . If service problems are a nuisance . . . NOW IS THE RIGHT TIME TO SEE YOUR PORTER-CABLE DEALER and start saving money right away!

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*Offer expires May 13, 1960

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Please send me your free Power Tool catalog.

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of a light meter and basic lighting requirements, I am not sure of other factors. Can you brief me on some of these?

We assume that you are trying to decide how to obtain just sufficient lighting to make the job of seeing relatively easy with the most economical installation possible. As a starting point it is well to remember that natural light is the best and lowest cost lighting unless it creates glare or is insufficient for the job to be done. There are various means for overcoming glare, but insufficient light must be corrected by artificial lighting.

Reflected glare depends essentially on type of material and tools used in working the material. A quick test for reflected glare can be made by placing an ordinary pocket mirror in the normal working position of the material. If the light produces glare, it is usually recommended that tools be coated with a dulling agent or extended light sources be installed rather than using concentrated light sources.

Every light source presents a potential shadow problem. To minimize this hazard with artificial lighting, recommendations are generally made to use enough lighting units to permit one to overlap the other and to use extended (fluorescent) light sources instead of concentrated (filament and mercury) sources for lighting.

To combat glare from natural light, awnings or shades are useful; primatic ribbed glass helps; and painting or whitewashing portions or whole windows is effective. Insufficient natural light may be due to grimy walls and ceilings rather than inadequate supply. Painting walls and ceilings with white, light blue or light green helps to keep the light in the plant and to utilize it better. Painting machines which normally provide a dull background against the work is also an effective remedy. Natural light shadows require relocation of equipment or auxiliary help from artificial lighting.

Preventive Maintenance

I am trying to sell a preventive maintenance program to management to reduce losses from mechanical failure or work degrade from improperly maintained machinery and equipment. Could you provide an outline of major factors required to set up such a program?

The program must be based upon a system of periodic inspection and prompt servicing of all machinery and equipment of both production and service types. Other important factors of a preventive maintenance program include:

1. Center all maintenance functions under a single head who should have full responsibility for complete plant maintenance.
2. Establish a maintenance budget and allocate individual order numbers to which all cost will be charged for all maintenance work and supplies.
3. Allow the maintenance department to participate in selection as well as maintenance of machinery and equipment.
4. Provide inspection work cards carrying machine or equipment identification, location and index of types of inspection required to eliminate oral or written instructions.
5. Establish regular inspection periods suited to the nature and use of machinery, equipment and facilities.
6. Schedule maintenance jobs in order of importance.
7. Stock renewal or repair parts which fail most frequently.
8. Reduce regular routine practices to written standard instructions and methods. Eliminate verbal instructions and make everything a matter of written record.
9. Train new operators thoroughly in proper care and use of machines they will operate.
10. Maintain perpetual record of performances of all machinery, equipment and facilities to show profitable replacement of inefficient units, based upon maintenance costs.

For information about any Advertised product, see the Advertisers Index and Action Card inside back cover

Is This Thinner OK?

Our purchasing agent is considering buying a cheaper lacquer thinner which contains low boiling solvents. A neighboring concern has had trouble with this thinner and I want to prevent similar problems in our plant. Will you describe the possible results of using this thinner for our P.A.'S information?

The most active ingredient of a lacquer thinner is the solvent, used primarily to reduce the viscosity of the lacquer to spraying consistency. An excess of low boiling solvents can cause trouble from too fast evaporation from the finished surface. This rapid evaporation can cause orange peel and in subsequent cooling can cause blushing if humidity is high. Medium boiling solvents are preferred for all-around use. If the cost can be justified, high boiling solvents have an even slower evaporation rate which permits the lacquer to flow freely when sprayed and permits the surface to cool very slowly to eliminate danger of orange peel and blushing. A typical low boiling solvent commonly used is ethyl acetate, a medium boiling solvent—butyl acetate, and a high boiling solvent—amyl acetate.

How To Clean Dripboards

We have trouble keeping the dripboards at our dipping tanks clean. We tried covering them with heavy paper greased on the underside to permit easier removal but this is messy and time consuming. What can we use over the dripboards that would expedite cleaning and not contaminate the finishing materials used in dipping?

A concern which dips thousands of small turnings daily reports good results by coating the dripboards with cocoa butter. This coating is said to allow easy removal of finish accumulations from the dripboards, has a high melting point, and is not contaminating to finishing materials.

Fir Veneer By Slicing?

Is fir veneer ever produced by slicing in the West Coast region?

Peeler (rotary) lathes are most used by West Coast veneer mills for cutting fir plywood. There has been a trend in recent years toward the use of the veneer slicer to cut grain fir veneer. This veneer is reported to show a refined grain pattern and to possess excellent strength properties.

Grinding Wheel Speed

What is the recommended grinding wheel speed for grinding machine knives and cutters?

Grinding wheel manufacturers generally recommend a speed between 3500 and 4500 surface feet per minute, depending upon size, shape and hardness of knife or cutter to be ground and grade of wheel.

Am I Right?

I contend that veneer with stripe figure is quarter-cut. Am I right?

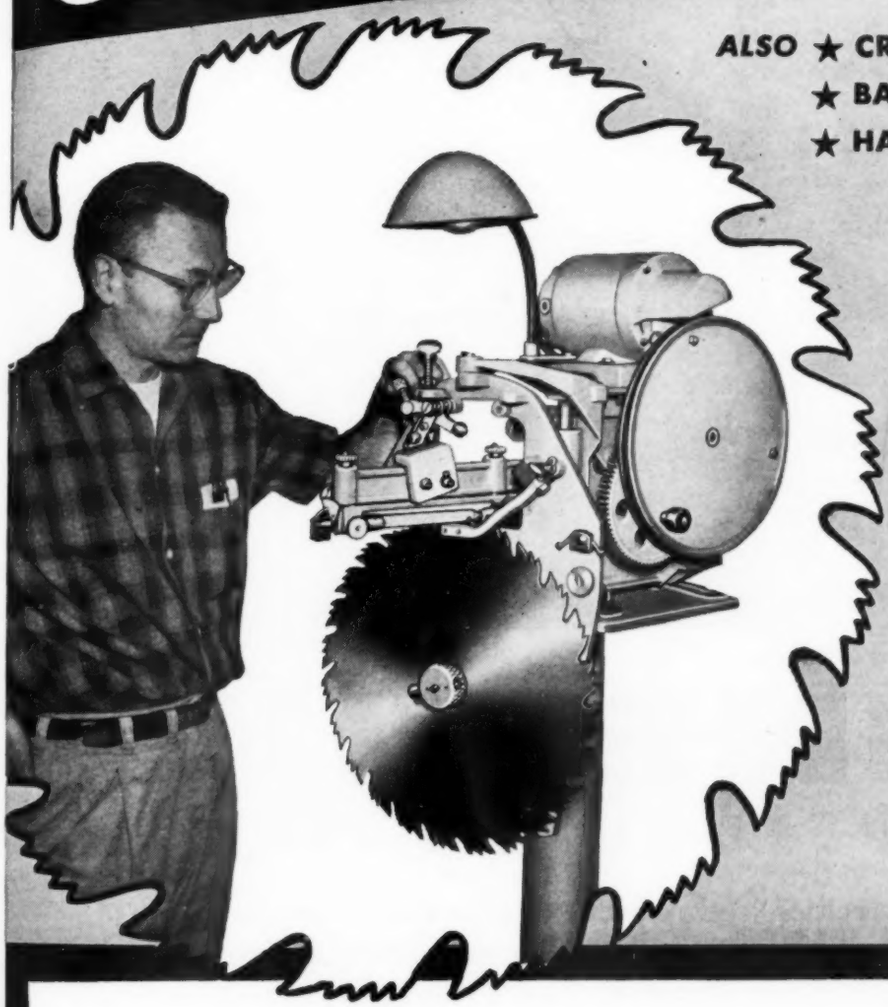
Popular stripe-figured veneer is usually produced by cutting the face veneer on the quarter, and is created by the interwoven grain of tropical trees or annual rings of native woods. A pleasing flake figure is also produced by quarter-cutting. An attractive rippled-ribbon figure is sometimes obtained by quarter-slicing some woods without prominent pith rays, such as red gum. The same method often produces a nice mottled figure in such woods as silver poplar.

SPECIFY
BEACH
PANEL SIZING SAW
• arbor accommodates as many saw blades, dado heads or groovers as required
• rips panels of any length into strips of any width . . . can dado, groove simultaneously
The Beach Panel Sizing Saw is specially designed for safer, more accurate, more economical multiple precision ripping, dadoing, grooving.
It can be easily, quickly adjusted to the requirements of a job; blades may be added to, or removed from the arbor without tearing down the machine! A double set of power-driven feed rolls prevents creeping or kicking back. Several standard size models; maximum cutting widths of 24" to 54" Special sizes available.
TILTING TABLE SAW
DOUBLE CUT-OFF SAW
SHAPER
Write today for full details on Beach Panel Sizing Saws!
BEACH
MANUFACTURING CO.
MONTROSE, PA.

Here's the FIRST and ONLY Machine that Automatically Files and Joints

COMBINATION RIP AND CROSSCUT SAWS

ALSO ★ CROSSCUT CIRCULAR SAWS
★ BAND SAWS
★ HAND SAWS



It's the new Model 200

FOLEY *Automatic* SAW FILER

THE NEW model 200 Foley Automatic Saw Filer is the *first* and *only* machine which will file the so-called "combination" (rip and crosscut) circular saws; also crosscut circular saws, band saws, all types of hand saws.

After years of research and testing, Foley has "jumped the gullet" in filing combination saws with a simple yet ingenious feed mechanism which feeds *an entire segment* at a time. Thus, the first tooth in each segment of a combination saw is sharpened clear around the saw; then the second tooth in each segment, and so on, until the saw is finished. The feed mechanism is also easily adjusted to feed from tooth to tooth for all other saws, as fine as 16 points per inch.

The exclusive Foley principle of jointing the saw as it is filed, keeps all teeth uniform in size, shape and spacing; it also keeps circular saws perfectly round. This assures a fast, smooth, true cutting saw that stays sharp longer, runs cooler, and frequently doubles the life of the saw.

30-DAY TRIAL OFFER

You may try the new Model 200 Foley Saw Filer in your own shop for 30 days. See for yourself its precision work, advanced design and quality construction—time-proved through more than 50 years, manufacture and use of previous models. Write for literature and details of 30-day trial offer.

FOLEY MANUFACTURING COMPANY
3351 N. E. 5th St., Minneapolis 18, Minn.

for

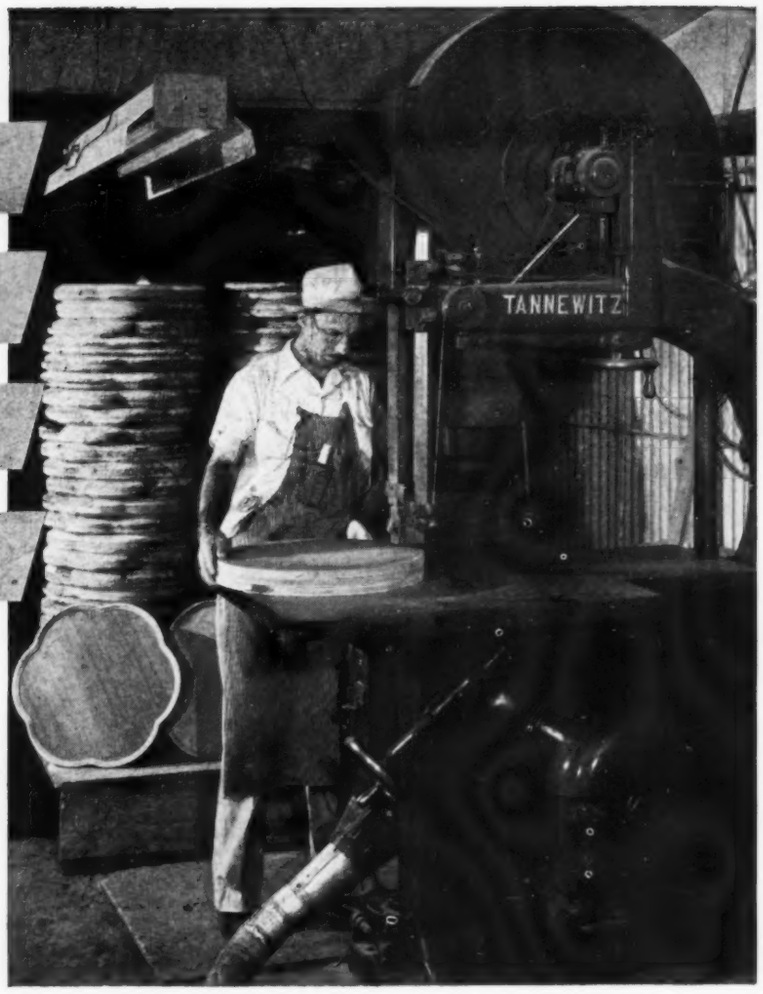
Smoother

Cleaner

Faster

Cutting

AND A LIFETIME OF TROUBLE-FREE SERVICE



buy

TANNEWITZ

HIGH SPEED BAND SAWS

The absolute precision with which these machines are built allows them to deliver over 12,000 feet of saw-blade travel per minute entirely without vibration. That means smoother, cleaner cuts requiring less cleanup; faster cuts, for at this speed the blade slides thru stock 12" or more thick as easy as butter. Traditional Tannewitz quality — the highest in the industry — and numerous patented features assure maximum convenience of operation and minimum maintenance. They're the best by any test — by far the cheapest in the long run. Write for "Band Saw Bulletins" and judge for yourself.

BUILT BY SAWING MACHINERY SPECIALISTS ☎ GL 6-1729

THE TANNEWITZ WORKS, Grand Rapids, Mich.

A roundup of day to day in-plant problems and how they were handled by management men. Each incident is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to Hitchcock's WOOD WORKING Digest.

Can management use a point system of discipline to curb absenteeism?

What Happened

Absenteeism and lateness became so big a problem that management decided to take drastic measures. It set up a system of "progressive discipline" based on points. For each absence and/or lateness the employee was given one point. When he received 2 points in any one-month period, the worker was warned; 3 points drew a week's layoff; and 4 points meant discharge.

The first 2 points were imposed for any absence. Points 3 and 4 were excusable if the employee could show that there was an acceptable reason for his neglect to come to work or for his having come late.

The union objected on two grounds:

1. You cannot institute a penalty program without negotiating the changes with the union.
2. You cannot penalize for general absences. An employee must be given a chance to show reasonable cause for ANY absence.

Management answered:

1. If absenteeism threatens our business we have a right to do what is necessary to keep us from going broke.
2. Management doesn't have to put up with excessive absences no matter how good the employees' reasons.

Was Management: RIGHT ☐ WRONG ☐

What Arbitrator Saul Wallen Ruled

"Management may lay down reasonable rules to govern attendance just as it may to govern other aspects of in-plant conduct such as discipline and safety, without prior negotiation. But under this program, the employee who malingers through four absences receives more consideration than the one who is legitimately ill on two occasions but whose two subsequent absences are deemed not to be excusable. The feature of the program which automatically penalizes an employee *regardless of cause* is not reasonable."

If an employee is on layoff and his job is discontinued, is he entitled to severance pay?

What Happened

The company had a policy which provided that when an employee lost his job because a department or an operation was discontinued, he would receive from 4 to 8 weeks' severance pay—depending on his seniority.

One day Jack Boland was laid off because of a lack of orders. He was on layoff for 14 months when the company decided to close the department in which Boland had worked. He claimed severance pay in accordance with established policy.

The company balked at this. It said that the layoff was not the result of a decision to discontinue the department. It was made because business was poor. The decision to close up the department entirely came so much later that the employee cannot claim that the company used the layoff to get around the severance-pay policy.

Was the Company: RIGHT ☐ WRONG ☐

What Arbitrator Peter M. Kelliher Ruled

"The discontinuance of the department was evidently not contemplated at the time that the employee was laid off. In order for the laid-off employee to become eligible for severance pay, there must be a displacement from his job, and his layoff must be attributable to the decision to discontinue the opera-

We Specialize in . . .

• streamline white oak
• american walnut
• cherry

Veneers
and
Lumber

AMOS-THOMPSON
CORP.
Edinburg, Indiana

tion or department. The employee is not entitled to severance pay."

Can you deny promotion to a senior man because he has a bad safety record?

What Happened

When a new job opened up, the company posted the vacancy on the bulletin board. It had a policy of granting promotions on the basis of seniority and ability. Bill Johnson put in for the higher job—he being the top-seniority man in the lower grade. When he was by-passed for the promotion he raised his voice in protest.

The company produced records to show that Johnson had two warning slips for unsafe conduct on the job. Management also said that Johnson had to be constantly reminded about observing the safety precautions.

Johnson promised to be "safe" in the future and claimed that the company couldn't use two warning slips as a basis for not promoting a man. "It's rank discrimination," he charged.

Was Johnson: RIGHT ☐ WRONG ☐

What Arbitrator Arthur Stark Ruled

"Management cannot be expected to assume undue risks or to assign a man who cannot safely fulfill all the requirements of the position. The evidence clearly shows that safety was the primary and only reason for Johnson's being passed by. On the other hand, there is no evidence to show that Johnson's actions would be any different in the future. In the light of the above, the grievance is denied. The company is justified in denying the promotion to Johnson."

You don't pay the man who isn't there

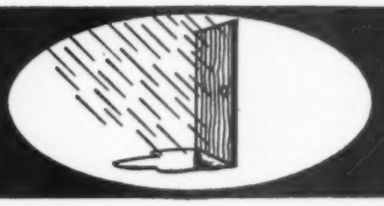
Engineered to Cut Costs

CORLEY
SAWMILL MACHINERY
CORLEY MANUFACTURING CO., CHATTANOOGA, TENN.

SPEED PRODUCTION

LOWER GLUE COSTS

Increase Water Resistance



. . . . with PERKINS 8523 CASEIN GLUE

Perkins 8523 Casein Glue, a blend of several adhesive materials, offers manufacturers of flush doors an opportunity to speed up production and increase water resistance at a lower glue line cost!

The formulation also offers advantages in other panel-to-frame gluing operations as well as in veneering and in laminating.

With Perkins 8523, pressure periods of up to one hour are sufficient. Overnight stacking is recommended for best results but less time is possible where necessary.

The glue line complies with the two cycle soak test called for by Commercial Standard CS 171-58 as well as the Type II and Type III requirements of CS 35-56. Actually, the bonds obtained with the Perkins 8523 formulation have given far better results than the Commercial Standards require.

The mixed glue cost of the formulation is much lower than that of other glues with fast set and high water resistance, representing a considerable saving to most glue users. It has a pot life of 6 to 8 hours, depending upon room temperature. Storage life of the unmixed Perkins 8523 is from three to five months.

It should be emphasized that Perkins 8523 is not an ordinary casein glue. It is a carefully prepared blend of casein with other materials having desirable adhesive properties.

Samples of the formulation are available for your tests or the Perkins service representative in your area will be glad to conduct a demonstration in your plant to prove the advantages you can obtain with Perkins 8523.

PERKINS GLUE COMPANY

Lansdale, Pennsylvania

PLANTS IN LANSDALE, PA.; SHAWANO, WISCONSIN; HIGH POINT, N. C.; WEST MEMPHIS, ARK.; KITCHENER, ONTARIO and LA CHUTE, QUEBEC

ECCO

Check these OUTSTANDING FEATURES

- Undercutting Principle for Rigidity and Safety
- Variable Speed Feeds are Infinite to Provide Correct Feed Speed for Material and Ability of Operator
- Adjustable and Removable Throat Insert of Soft Metal Eliminates Sliver Jams and Prevents Damage to Saw Blade
- Stiffening Collars Support Saw Blade up to Level of Feed Chain
- Eight-Roll Pressure Bar Assembly Adjusts Smoothly and Easily and Stock as Short as 4½" can Pass through Machine
- Counterbalanced Free Floating Feather-Touch Stock Gauge

they said IT COULDN'T BE DONE

That is, Build a Better Glue Joint Rip Saw

BUT **EKSTROM, CARLSON** DID IT!

No one believed it possible to improve the design and operation of a Straight Line Chain Feed Glue Joint Rip Saw until the Ekstrom, Carlson Model E was introduced. But check the list to the left—these are just a few of the new exclusive features incorporated into this remarkable saw—features that give you definite advantages and benefits — there are many others. The dual chains control the stock on **both** sides of the blade. Chains **and** Races are interchangeable, arbor is accurate and vibrationless. That is why the Model E is the finest saw made and why it outperforms and outlasts all other saws.

READ WHAT SATISFIED USERS SAY — Just don't take our word for it. Read actual letters received from plant managers and operators. See how enthusiastic they are. Get your copy of the 8-page Bulletin that clearly illustrates all these features, shows inherent safety, cut-away detail of all parts, advantages of the undercutting principle, cross-section of pressure roll housing, details of chains and chain drive, specifications, etc. Your copy is waiting, write today!

EKSTROM, CARLSON & CO.

1401 RAILROAD AVENUE • ROCKFORD, ILLINOIS

Where work clothing may become soaked with oil or chemicals or paints, they should be changed frequently. This not only promotes increased cleanliness, it also avoids skin rashes, dermatitis, and the dangers of fire and burns.

Are Your Workers "Dressed to Kill"?

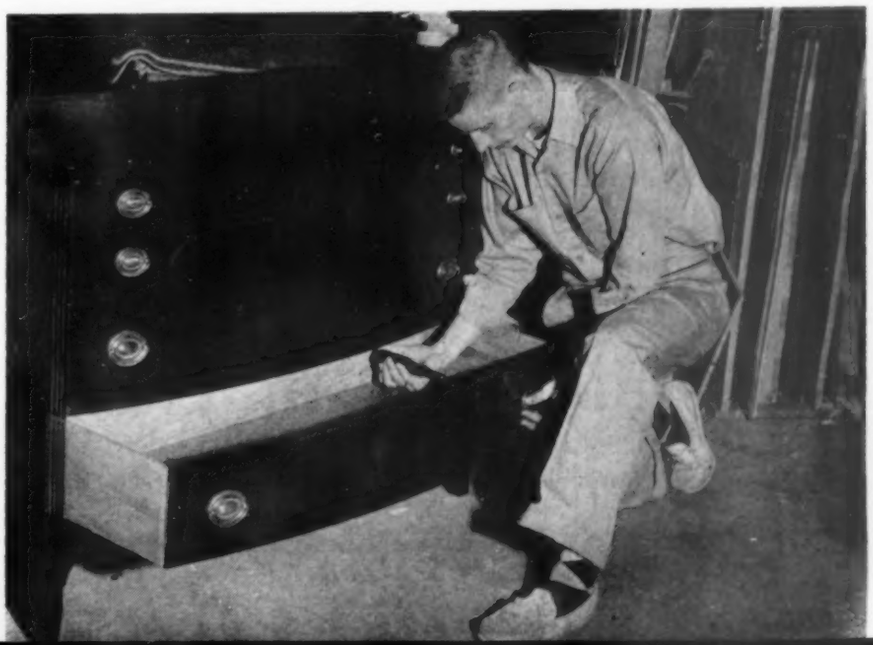
By Joseph Kirshbaum
President, Institute of Industrial Launderers, Inc.

■ The subject of safety in working clothes is a vital one, particularly in woodworking shops, where accident possibilities are considerably higher than in many parts of American industry.

The trade association of which I am president, the Institute of Industrial Launderers, has done a great deal of work in the field of garment safety. Cooperating with the National Safety Council, the American Standards Association, and others, we have, for many years, labored at drawing up standards for safe work garments.

Work clothing is closely associated with accident rates—a fact too often overlooked by executives in the woodworking field.

Consider a commonplace "typical" accident. A worker has a button missing from the cuff of his shirt sleeve. It doesn't seem important, and he ignores it until the dangling cuff gets caught on moving machinery. If he's lucky, he will lose only his arm. If he is unlucky, he may well be mangled or killed. Other common causes of accidents involving ill-designed or poorly maintained work garments include crippling falls (from trousers with cuffs on them that catch on projections), burns, infections and skin irritations (from work clothing that is not laundered as frequently as it should be because the family washer is not designed to remove stubborn indus-



Well-designed uniforms eliminate many safety hazards. Such work clothes raise employee morale and, when designed with a company emblem, become "walking ads" for a firm.

trial stains, and housewives object to laundering such garments).

Advantages Of Uniforms

From the foregoing, I hope that I have convinced you that it is good business—and probably cheaper in the long run (one expensive accident can cost far more, for instance, than the expense of a uniform program for years in your plant)—to have your employees in uniform.

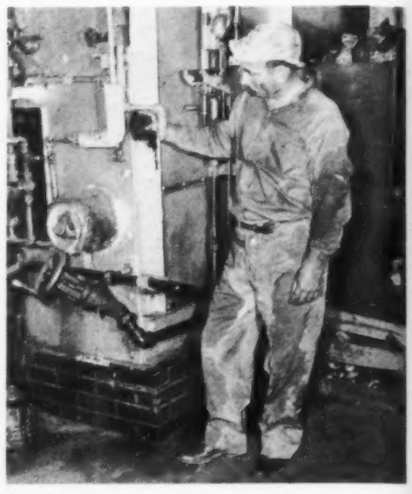
There are many other advantages to uniforms: increased cleanliness, better public relations, higher employee morale and productivity.

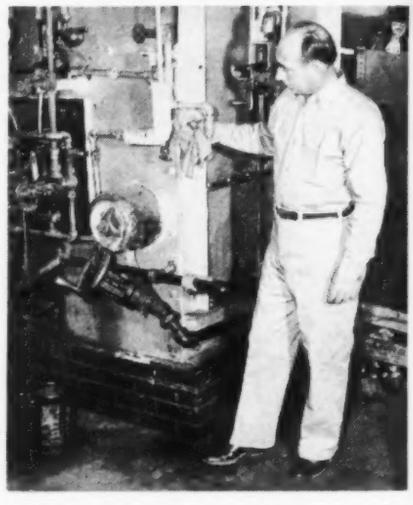
Uniforms are popular with employees, with customers, and with the public. Certainly every employee of your woodworking plant who deals directly with the public should be in a uniform showing your company's emblem. That way you turn every employee into a walking, living advertisement for your business. Many employees, such as drivers, are seen by a vast number of people each week.

Tips About Uniforms

Selecting the *right* work uniform for your employees is not always as easy as it may seem. Uniforms should be practical and selected carefully, with due consideration of the on-the-job conditions.

Sometimes it is possible to make mistakes. I recall one huge company which selected a uniform modeled after that worn by a five-star army general and did the general several points better by tacking onto the uniform a number of gaudy, "fruit salad" features which (the company executives thought) would improve its appearance.



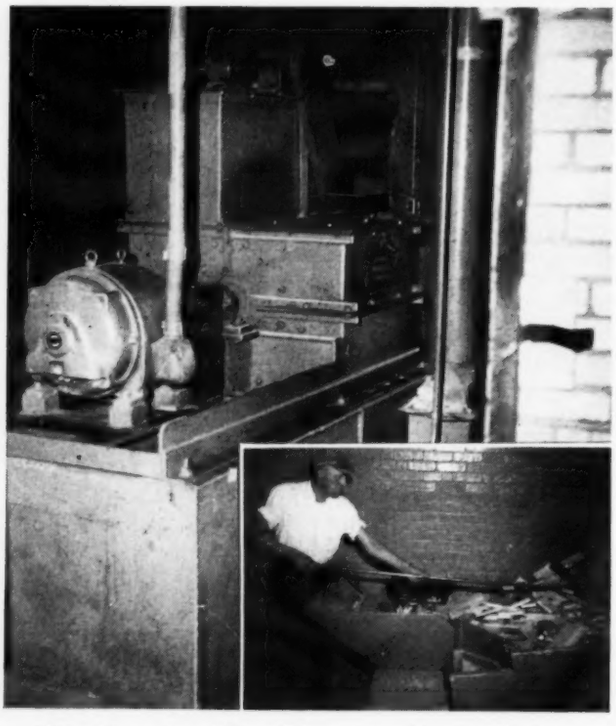


"Before" picture shows a maintenance worker whose oil-soaked clothing is a fire hazard. Torn clothing may catch on projections and cause a fall. Skin rashes can come from such soiled clothing. The "after" picture shows a neat, clean uniform with safety hazards found in the first picture completely eliminated.

The uniform was not suited to on-the-job conditions. It could not be laundered but had to be dry cleaned. Under the company plan, the employees were supposed to have this done frequently at their own expense. The men resented the high cost of dry cleaning the uniforms. Some wore a uniform

American **WOOD HOG**

Converts Wood Scrap into Fuel; Eliminates Coal . . . Saves $6,000



"Our American Wood Hog pays for itself time and again!" writes a well-known luggage manufacturer.

"We haven't bought a single ton of coal for boiler use since we installed our American Wood Hog—and we're saving $6,000 annually by not buying coal.

"American's can take it, too. We've fed as much as 1½ tons of scrap wood per hour without experiencing any trouble."

American **PULVERIZER COMPANY**
ORIGINATORS AND MANUFACTURERS OF RING CRUSHERS AND PULVERIZERS
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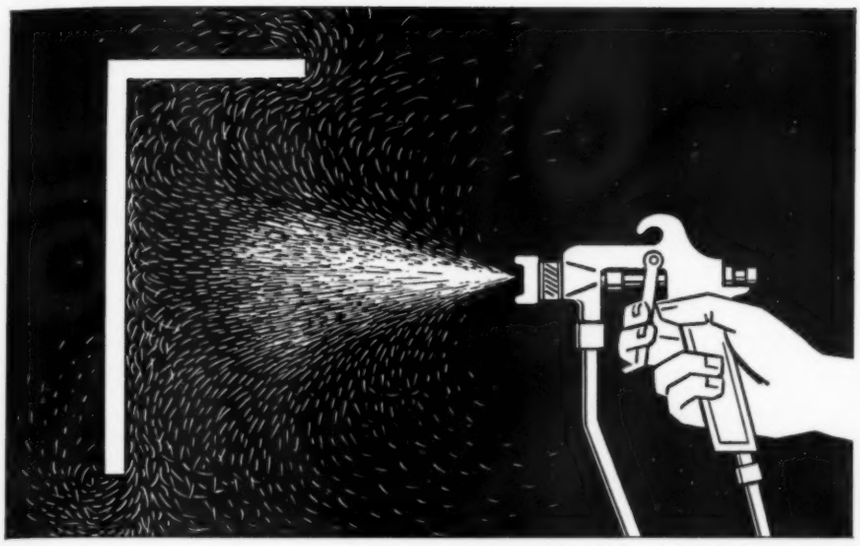
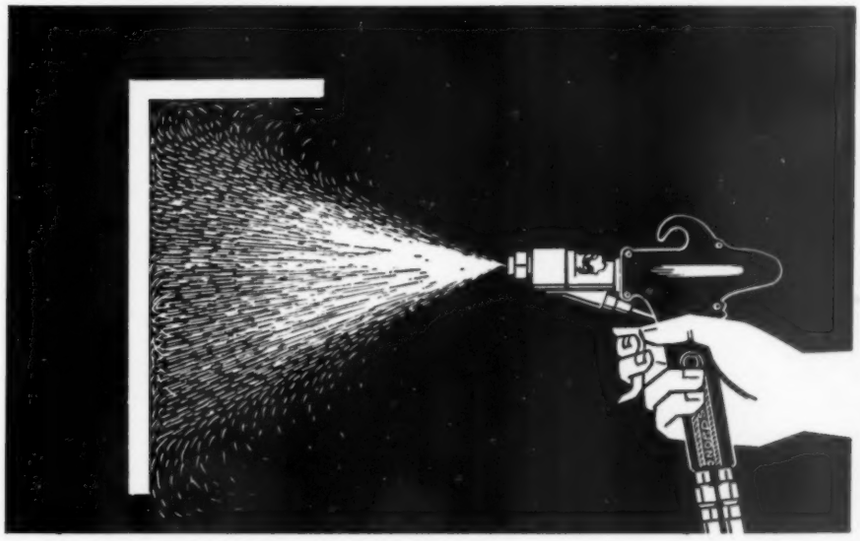
WHERE THERE IS PAINT FOG... THERE IS PAINT WASTE!

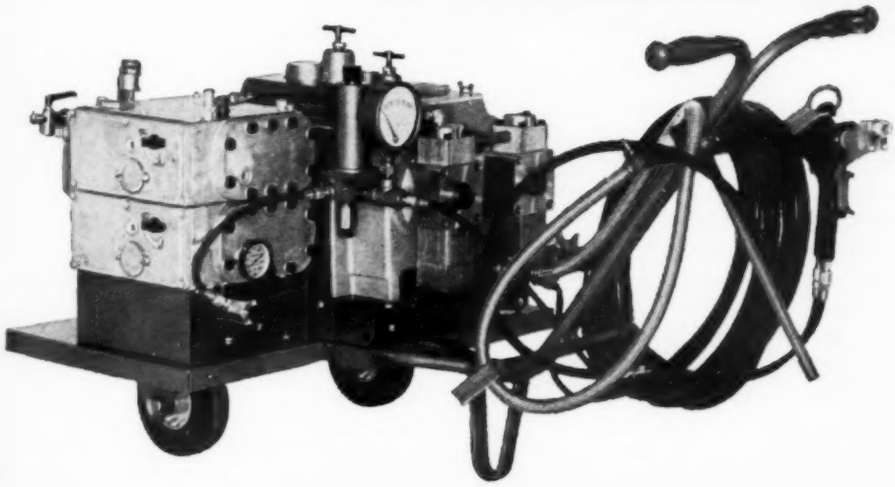


Whenever you see paint fog you see paint waste. Waste that can cost **you** thousands of dollars. Nordson, and only Nordson, overcomes this problem of paint waste with a system that employs **both** heat and pressure – a system that provides maximum control over both cost and quality. With the Nordson Hot Airless System, savings of 30% on coating materials are common. Improved finishes and labor savings, too.

THIS IS ORDINARY SPRAY PAINTING WITH AIR

THIS IS NORDSON AIRLESS SPRAY PAINTING





Sound too good to be true? Let us prove our story in your plant spraying your product with your coating material. Write for full information.

NORDSON CORPORATION

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for weeks—even months—without cleaning. Others tried to launder it in the family washer. Result? Very quickly, most employees looked like fugitives from Skid Row. The uniforms were abandoned with considerable financial loss.

Had the company asked the benefit of expert, impartial advice (not the uniform salesman trying to make a sale!) this could easily have been avoided.

Member companies of the Institute of Industrial Launderers supply, on a rental basis, more than 90% of the work garments used in industry. We have come to some very definite conclusions about uniforms:

1. Uniforms should be wash-tested *before* they are adopted.

2. *Cotton* is best for most purposes. It stands up well, can be laundered easily and cheaply, and looks good for a lifetime.

3. Standard colors (of which there is a very wide variety) usually are best for most work uniforms.

4. Fancy, "fruit salad" features should be avoided. They look fine at first but are often impractical, cause problems in laundering, and their over-all effect on the uniform is nearly always detrimental in the long run. In addition, such features are often very expensive.

5. *Eye appeal* and *company identification* can easily be obtained by the use of attractive, well-designed *company emblems.* These, used in connection with the standard color uniform, focus the eyes of the viewer where they should be—on the emblem which carries the company's identification and perhaps its advertising message.

Advice About Uniforms

Suppose that you are interested in adopting a uniform or changing the uniforms your workers wear. How do you go about it? One way would be to take advantage of the free consulting service maintained by the Institute of Industrial Launderers. The Institute for several years has operated a free, *impartial* consulting service. Hundreds of companies have used it. This service will make available, without charge or obligation of any kind, expert, practical men in the field to consult with responsible company officials.

There are no strings of any kind attached to this service. The Institute has no axe to grind. The product of no individual uniform manufacturer is recommended, nor are the services of any individual laundry recommended for maintenance. Instead, general specifications are recommended which will make sure that the uniform adopted will suitably meet the on-the-job conditions of the company concerned.

Why is the Institute going to this trouble and expense? Simply as a public service and to increase the total number of work uniforms in use. We don't want people to have unfortunate experiences because they choose unsuitable uniforms and give up the whole project.

Incidentally, if you're interested in having help on your uniform problems, drop a line to the Institute of Industrial Launderers at 1833 Jefferson Place, N. W., Washington 6, D.C. □

★ ★

Hand Sanding Precision

...at Lower Cost!

Lightweight...Fast...Dependable

Whether you are rubbing the finish coat, padding in filler, sanding in the white or doing any one of many finishing operations . . . you will find National-Detroit has the proper sander to speed the work and improve the finish. Model 400, orbital action, air driven sander shown above is superior for fast stock removal. National-Detroit also manufactures a Model 300, two-pad, reciprocating sander for use where straight-line action is preferred. Write today for new catalog showing the complete line of electric and air driven block sanders.

Write for Complete Catalog, Today

NATIONAL N D DETROIT

NATIONAL DETROIT, INC.
ROCKFORD, ILLINOIS

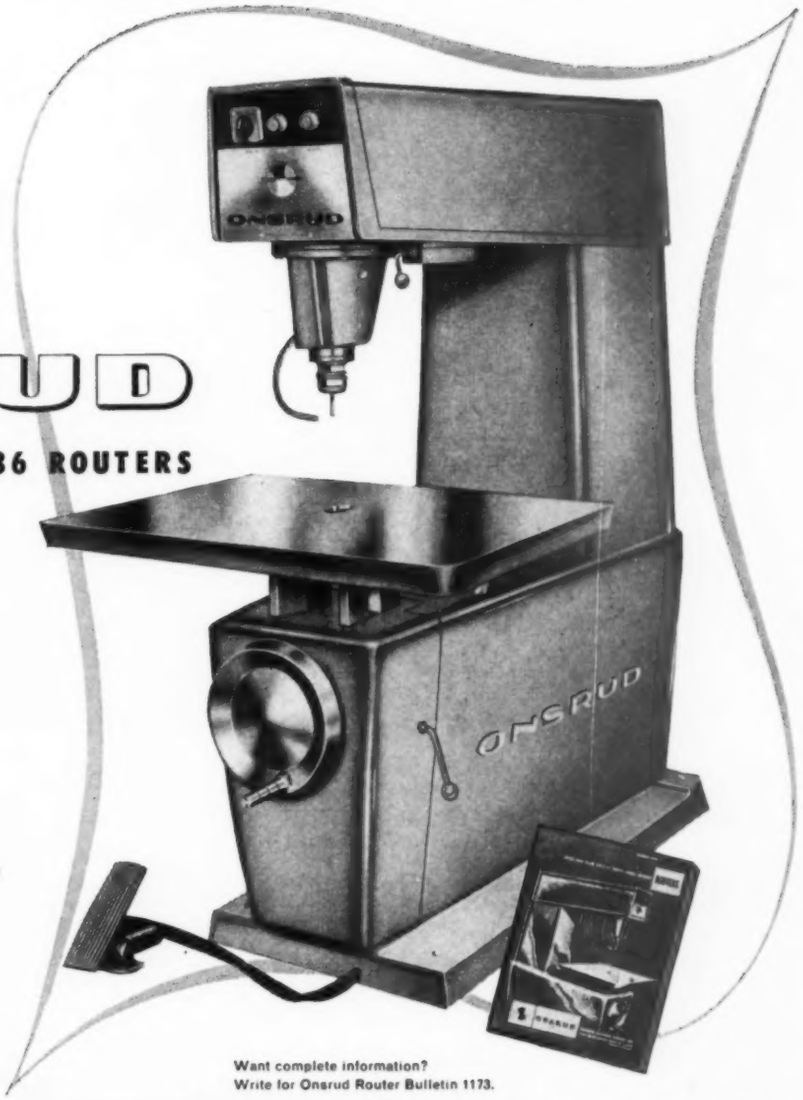
designed for
QUALITY
and **QUANTITY**
at lower cost

ONSRUD

HEAVY DUTY 1024 and 1036 ROUTERS

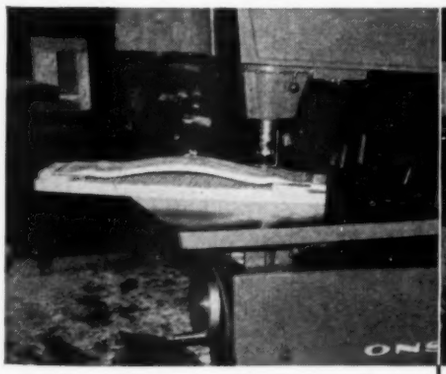
Ask any user of these new type routers and you'll find enthusiastic approval. (We'll be glad to supply the name of your nearest neighbor.) They're only one year old but a surprising number are already in use. In performance, in dimensional capacity, in the speed and quality of production and in the unusual ease of operation . . . there have never been heavy duty routers like these before. Let an Onsrud representative give you complete details. We cordially invite your inquiry.

ONSRUD MACHINE WORKS, INC.
7742 LEHIGH AVENUE • NILES 48, ILLINOIS
(Suburb of Chicago)



Want complete information?
Write for Onsrud Router Bulletin 1173.

COMPLETE CHOICE OF ATTACHMENTS FOR EVERY SPECIAL ROUTING JOB

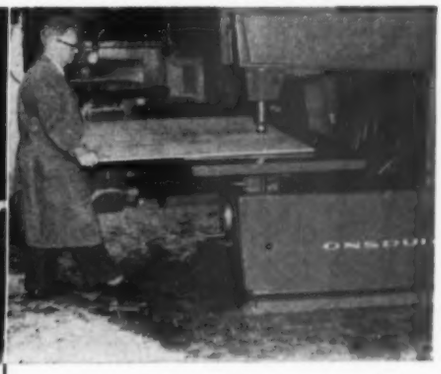


FLOATING SPINDLE HEAD

The spindle "floats" to follow curves and contours. Hold-down pressure is ample to maintain routing depth . . . but light enough for operator to move work easily under pressure foot follower. For routing any type of contoured surface.

AUTOMATIC RECIPROCATING FEED

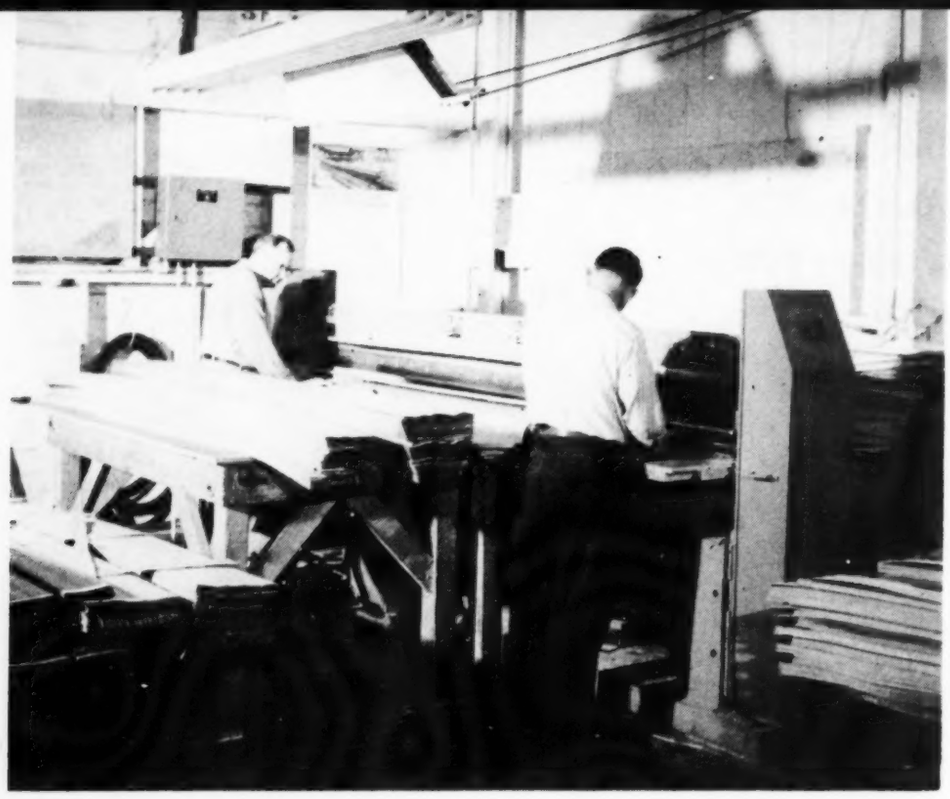
Timer and depth stop are set to lower and raise spindle in any desired time cycle and routing depth. Timer adjusted in seconds to control speed of cycle and time of down position. For any type of duplicate routing cut that can be fed at high speed.



REMOTE CONTROL AUTOMATIC DEPTH STOP

Foot control attachment for lowering spindle to two different stop positions and for raising head. Designed for routing large parts that prevent operator from conveniently reaching manual depth stop on machine.

ONSRUD — OUR 40th YEAR . . . BUT STILL FIRST WITH THE MOST MODERN, MOST PRODUCTIVE WOODWORKING MACHINES.



Operation view of modern Merritt-Solem veneer clipper, on which knife-bar action is powered through a specially-developed clutch-brake unit.

How Friction Clutches Are Used On Woodworking Machines

■ Clutches are used in many places in connection with woodworking, veneer and plywood processing equipment. Many of these, though by no means all, are friction clutches of one type or another. Friction clutches may be engaged and/or disengaged manually, mechanically, pneumatically, hydraulically or magnetically. To operate equipment to highest advantage, a friction clutch must not only be properly installed, but must have a certain amount of maintenance. Something of the general way in which it is constructed must be known, before one can fully understand how a clutch operates.

One thing concerning the friction clutch is universally true. That is, it is a unit employed for transmitting torque and rotation to one machine member by friction, from an already-rotating element. It is used under conditions where it becomes needful to connect or disconnect a driven machine, or part of a machine, from its driver, while the driver or power source continues in motion. There are some cases where it is necessary or desirable to disconnect the power source from its load during initial starting of a relatively-heavy machine; this allows starting the driver without the load. A friction clutch, interposed, can then be employed to pick up the load gradually, either after the power source has come up to part of its normal speed, or after it is rotating at full speed.

Heavy starting loads of this type are not too often encountered, however, in the woodworking industries. Most uses for clutches involve cases where the driven machine or load is to be intermittently started and stopped without stopping the prime mover. Occasionally, a muliple operation is involved, with several machines independently driven from a single drive shaft. A clutch connection is then provided for driving each machine as need appears. Usually, however, the clutch is applied in some individual operation, as for instance in driving the knife bar of a veneer clipper, where the clutch is thrown in to actuate the knife bar only after the veneer has first been properly positioned.

There are various unusual functions performed by special clutches. It has often been necessary to incorporate an element in an expensive machine which would prevent any extensive damage to the unit in case an overload might occur. Sometimes, shear pins have been installed at strategic places, which would automatically shear and thereby disconnect a gear, a sprocket, a pulley, etc., from the shaft on which it was mounted.

It was found in many instances, however, that the same purpose was better served through use of a special type of clutch, often referred to as a torque-limiting or overload-releasing clutch. This is usually some type of friction clutch, preliminarily set so it will carry the necessary torque load under all normal

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EAST ROCHESTER, NEW YORK

April 5, 1956

James L. Taylor Manufacturing Co.
Poughkeepsie
New York

Attn: Mr. Lloyd Quick

Dear Mr. Quick:

After a thorough investigation of all the different kinds of core gluing equipment now in use we purchased and installed one of your Panel-Flo machines in our Plant at East Rochester, New York in October, 1955.

This machine to date has given us complete satisfaction. Through this Panel-Flo we process all core stock varying from 1/4 to 2-1/4 inches in thickness and from 12 to 60 inches in length. Both soft and hard woods are used.

Through the use of this machine we have been able to cut our core gluing organization to less than half of what it was before while at the same time we have materially increased production in this Department.

If present production is maintained, this machine will pay for itself in considerably less than 2 years.

Yours truly

AEOLIAN AMERICAN CORPORATION

Vice President

RWS:K

A letter from Mr. R. W. Staff, Aeolian-American Corporation, East Rochester, N.Y., proves again that the TAYLOR PANEL-FLO is the continuous edge gluing machine for low cost output. This letter testifies that the "PANEL-FLO" delivers uniformly sound joints with more production and yet a reduction of more than 50% in manpower.

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* Reg. U. S. Pat. Office.

FREE BOOKLET: Write today for your copy of "The Taylor Panel-Flo Continuous Edge Gluing Machine," a booklet which explains the engineering advancements accompanying this new, revolutionary method of Continuous Edge Gluing.

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operating conditions, but which will slip if and when a given amount of overload builds up.

An interesting use of such a clutch is found in some modern double-end tenoners and similar machines. Here, if by any chance a jam occurs on the feeding mechanism, or if it is otherwise strongly overloaded, a safety clutch automatically disengages the feed, thus calling the condition to the attention of the operator. The clutch can be one of safety rattle type.

Free-Wheeling Clutches

Another interesting type of special installation involves employment of a so-called free-wheeling clutch, sometimes referred to as an over-running clutch. Such a clutch is applicable where it is desired to impart rotation directly to a driven member by the driver, under usual circumstances, so the driven member will have the same r.p.m. as the driver. Yet, such a clutch is so designed that it will allow the driven element to turn at a faster r.p.m. than the driver, should any set of circumstances be introduced where this becomes necessary. An instance of this type is found on some of the better glue spreaders in connection with the doctor roll drive.

For example on Black spreaders each doctor roll is of smaller diameter than the application roll. Usually, when the spreading job is such that the running doctor roll is not in actual contact with the appli-

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cation roll, surface speed of the doctor roll is considerably slower, providing an automatic wiping action. Sometimes, however, the doctor roll is adjusted sufficiently close that it actually touches the application roll. Whenever this occurs, it is much better for the two rolls to run at the same surface speed, thereby avoiding wear on the rubber roll. To do this, a free-wheeling clutch has been mounted on each doctor-roll shaft.

As a result, the doctor roll continues with its slower surface speed as long as no actual contact is made between the two rolls. As soon as the doctor roll comes into contact with the application roll, however, the doctor roll is immediately driven directly by the application roll, this being automatically permitted at any time by the free-wheeling clutch. As soon as the two rolls are separated by adjusting the doctor roll away from the application roll, the free-wheeling clutch again picks up the drive of the doctor roll, at its normal and slower surface speed. The clutch engages and disengages smoothly and quietly, as occasion arises.

Clutch-Brake Layouts On Clippers

There are other cases where it is an important facet of safety that a clutch shall *not* overrun. This is of such great moment in some instances that clutch-brake combinations are employed. Generally, these operate electromagnetically. An instance in point is the operation of a veneer clipper, where it is important that the clutch for the knife bar shall engage instantly; carry the knife bar swiftly through one "down-up" cycle, and *positively* stop it at the end of the cycle. Obviously, any faulty, over-running clutch used on such duty introduces great hazard to an operator, who may have his fingers in close proximity, and may lose some of them if the clutch used is not thoroughly dependable.

Severe duty is imposed on both the clutch and the brake where a clipper is operated through a clutch-and-brake system. Consider the fact that during a single revolution or clipping action on one of these machines, the brake must first be disengaged; the clutch engaged; then disengaged; and finally the brake engaged again. That is to say, in a single cycle, four separate actions are involved.

All four of these motions must be completed in an exceptionally small fraction of a second, if the clipper is a high-speed unit. It is therefore understandable that on some highly modern clippers, like those made by Merritt-Solem, a special magnetic clutch-and-brake unit has been developed. Generally, this unit is connected to the main shaft through a chain drive. It adequately meets the trying requirements imposed by the conditions it necessarily encounters. □

Clutches On Woodworking Equipment

Friction clutches of different types are available from:

Rockford Clutch Division, 1315 Eighteenth Avenue, Rockford, Illinois.

Dodge Manufacturing Corporation, Mishawaka, Indiana.

Conway Clutch Company, 2747 Colerain Avenue, Cincinnati, Ohio, and others.

FAST DELIVERY
The most complete inventory of Furniture Tools.
#122 Bevel with #122-D available in high speed steel
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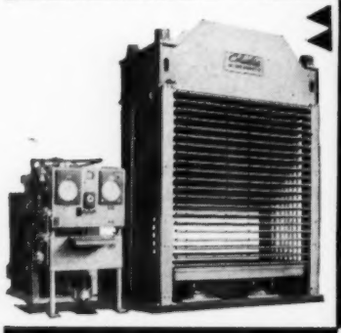

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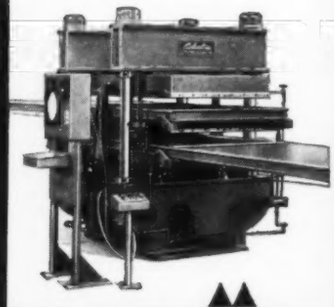

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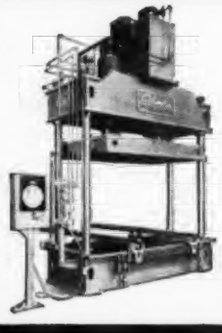

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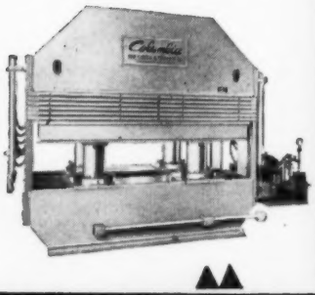

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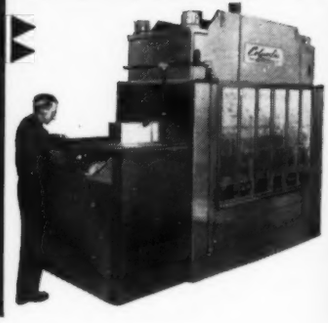

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For detailed COLUMBIA literature, write:

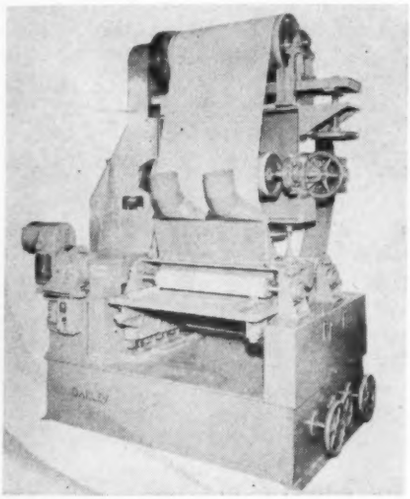
The LODGE & SHIPLEY Company

3061 Colerain Ave., Cincinnati 25, Ohio

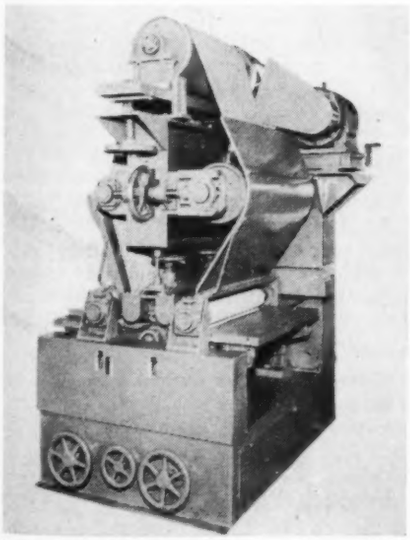
equipment and supplies

Wide Belt Sander By Oakley

The Oakley Company, Bristol, Tenn. machine builder, has specialized in belt sanders for the furniture industry for 26 years. The company now is marketing a new machine, Model HP-24", a wide belt sanding machine which features pinch-roller and conveyorized automatic feed.



Front (infeed) view.



Rear (outfeed) view.

One of the features of the machine is a corrugated rubber conveyor belt which operates around the lower infeed and outfeed pinch-rollers and the soft-rubber contact roll. This conveyor prevents trapping of short work between the positive-drive infeed rolls and sand belt or between belt and outfeed rollers. Pieces as short as 9" can be automatically fed in, through and out of the machine without butting. A variable speed motor drives the feed mechanism through a roller chain. The combination of pinch-rolls and conveyor belt feed mechanism prevents the possibility of kick-back.

The sand belt is both manually and automatically tracked. When first applying a new sand belt to the machine, it can be positioned, if necessary, by means of a manually operated handwheel, but once it is placed in the desired position it automatically holds this position and tracking is automatically maintained by means of side guide rollers. The sand belt is quickly and easily changed and is a simple one man job. It is tightened by one adjustable idler pulley which moves back and forth, controlled by a very conveniently-located handwheel.

Automatic compensation for slight variations in stock thickness is achieved by interaction of the spring-loaded platen suspended between two idler rolls and the soft-rubber center contact roll. "Passing under the sand belt and controlled by these two elements, the stock enjoys a floating action that compensates for slight thickness variations and helps achieve an unusually good polish for this type of machine," Mr. Oakley explains.

Manufacturer: The Oakley Company, Bristol, Tennessee.

Use postpaid card. Circle No. 16

Wickman Impregnator Described

The Wickman impregnator is an English invention. U. S. sales are being handled by Williams & Hussey Machine Corp., Milford, New Hampshire. This portable unit is used for the carbide impregnation of steel cutting tools and dies—an up-to-date technique to increase the life of cutting tools.

A simple stroking action over the tool surfaces impregnates them with a wear-resistant carbide layer. It is not necessary to impregnate the whole surface of the tool. The object of impregnating with carbide is to combat wear, so that only those areas of the tool which suffer serious deterioration need be treated. Some tools may require impregnation at the cutting edge only; others behind the cutting edge to reduce cratering, or below it to reduce wear through chip abrasion.

The impregnated tools should always be used under the same careful conditions as would exist for an untreated tool. Because there is a definite penetration of the carbide into the surface of the tool, there is no tendency for the carbide deposit to lift or peel under abrasive action.

Complete information and literature is available from the distributor.

Distributor: Williams & Hussey Machine Corp., Milford, N.H.

Use postpaid card. Circle No. 17

Day Company Improves Dust Filter

The latest addition to the line of dust control equipment manufactured by the Day Company of Minneapolis, Minn., is an improved design "RJ" dust filter.

The most basic design change in this dust filter is a new, simplified method for maintaining the porosity of the filtering media. Here's how this works: A reverse air plenum (pressurized by a centrifugal blower) rotates in the top chamber of the filter. As this plenum cycles between filter sleeve openings a "butterfly" valve is in a "closed" position and the plenum is filled with high pressure air from the centrifugal blower. As plenum centers over filter sleeve "butterfly" valve opens and high velocity, counter-flow air is discharged to remove accumulated dust from filter sleeve. Sleeves are counter-flowed one at a time, and the most recently cleaned sleeve is rendered inactive by trailing plate, thus minimizing redeposition. Plenum rotates from sleeve to sleeve where the same action takes place. By maintaining the porosity of the filter sleeves, back pressure and air volume remain constant.

The filter has also been improved by the addition of a reverse air pressure blower. Newly designed air-tight, quick-opening inspection doors have also been added.

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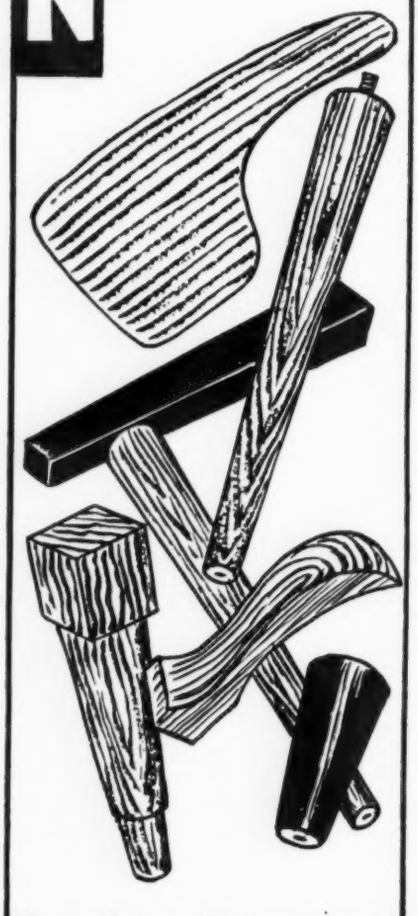

We manufacture only to your blueprint specifications, for style and dimensions, finished or unfinished in oak, gum, ash, maple, walnut, birch or other specified woods — plywood and solid.

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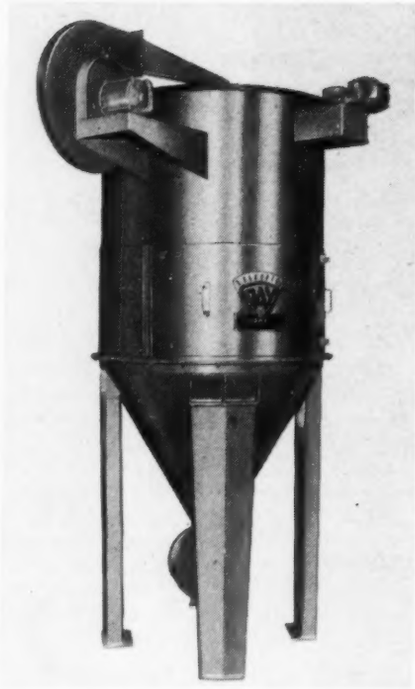


The Day "RJ" filter is available in five sizes in capacities ranging from 285 to 6400 cu. ft. of air per minute. Larger capacities are furnished by multiple groupings. Single units are supplied with round housings, while multiple units are furnished with square or rectangular housings.

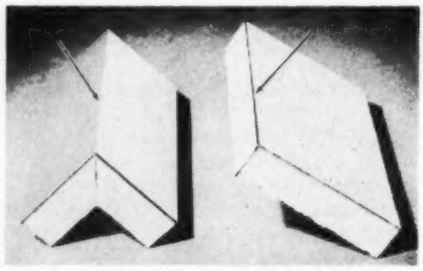
Manufacturer: The Day Sales Co., 810 Third Ave., N.E., Minneapolis 13, Minn.

Use postpaid card. Circle No. 18

Perfect Mitered Edge For Laminated Plastics

A perfect mitered edge for laminated plastics is now possible with a new method that eliminates the exposed dark line or T-molding that formerly characterized the finished edge or corner.

The revolutionary approach was unveiled jointly by Knick-March Engineering, Inc., and the Porter-Cable Machine Company at the National Association of Home Builders' Show at Chicago. The operation is performed by a patented mitering attachment joined to a Porter-Cable 2½ h.p. router.



New edge for laminated plastic is shown at left compared to old method (right) which leaves an exposed dark line. The finished quality edge is achieved by the new mitering device. It is a very simple mitering operation and will be used widely on countertops, furniture and displays.

Ray March, president of Knick-March Engineering, Inc., and E. Lawrence Tabat, vice-president of marketing for Porter-Cable, termed the new product "a long awaited development in plastic fabrication because of many previous unsatisfactory attempts to achieve the perfect finished edge." They pointed out that preliminary surveys indicate enthusiastic reception by architects, cabinetmakers, furniture manufacturers and fabricators. It is expected to be widely used on kitchen counter-tops, furniture, displays and commercial furnishings.

Besides producing a quality-finished edge the new mitering technique also is faster, stronger and cleaner than older methods. The new technique results in a stronger joint by making a concave cut on both surfaces providing more contact area for gluing. It is also cleaner than previous mitering operations in that it requires no extensive sanding or finishing.

Manufacturer: Porter-Cable, 101 Seneca Street, Syracuse, New York.

Use postpaid card. Circle No. 19

New Melamine Glue Enables Waterproof Bond For Plywood

A new melamine glue which produces a completely waterproof bond for plywood and edge-glued lumber has been announced by National Casein Company.

Called "M-3", the new melamine glue is a white practically-odorless powder that contains no filters or catalyst. Because heat is required to set the glue line, hot press and high frequency gluing are recommended.

"M-3" will yield waterproof, boilproof, non-staining and craze-resistant bonds of highest quality. It produces light colored glue lines which meet the rigid requirements of MIL-A-397B, CS-35-56 and other government specifications for waterproof plywood.

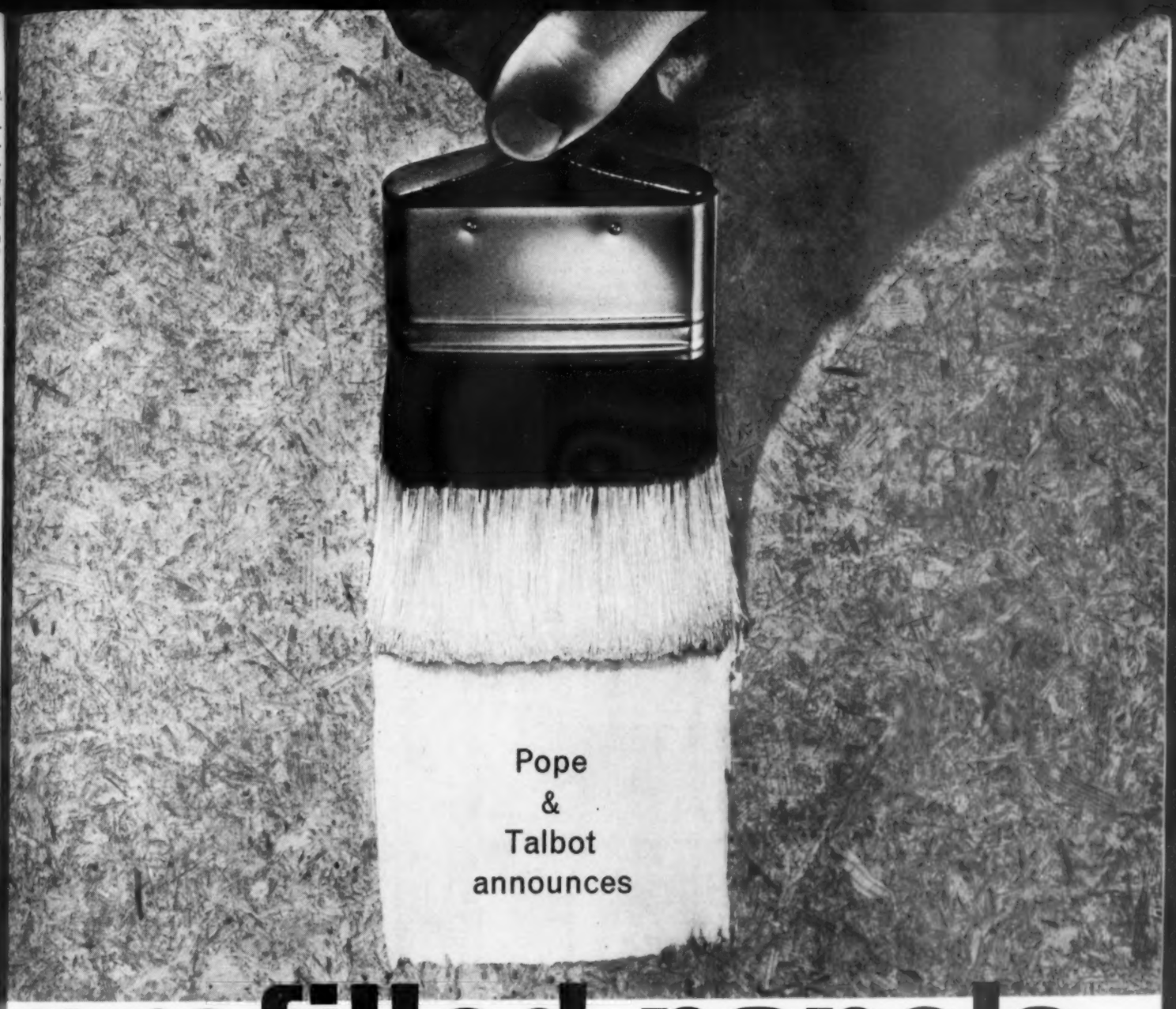
The new melamine glue can also be used with liquid and powdered urea resin glues to upgrade the durability of the glue bond. When used in this manned as a urea resin glue fortifier, "M-3" enables plywood manufacturers to meet glue bond requirements of Government Specification CS-35-56, Technical and Type I grades.

Manufacturer: National Casein Co., 601 W. 80th St., Chicago 20, Ill.

Use postpaid card. Circle No. 20

Simonds Plywood Saw

An all-new plywood combination saw is now being placed on the market by Simonds Saw and Steel Co. This saw, the No. 66, is designed to eliminate both top and bottom splinters and slivers. It is made for hand feed use on table, radial arm and swing saws



prefilled panels

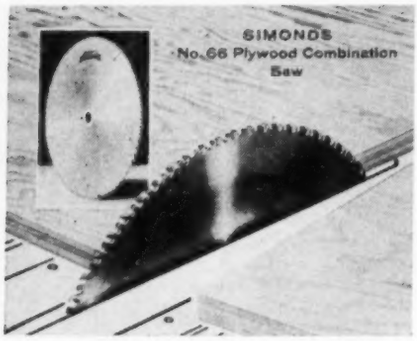
Now order particleboard, blendboard, and flakeboard satin-smooth both sides—factory-ready for paints, lacquers, varnishes. Speed finishing time on cabinetwork, fixtures, furniture. Or use it for convincing printed grains. Call your supplier—ask for Pope & Talbot prefilled panels!

High-speed wide-belt sanding prepares panel faces. Then each surface is filled with a special vinyl compound. Resulting satin-smoothness, together with excellent machining qualities, now makes Pope & Talbot prefilled board twice as useful for all exposed applications.

One coat each of primer and finish paint (oil-base paints recommended) provides exceptional coverage; lowers finishing costs. Balanced-construction panels, prefilled both sides, remain flat and warp-resistant. Use them for room dividers, non-bearing partitions, sliding and bifold doors, cabinetwork.

POPE & TALBOT INC.

3070 N.W. Front Ave · Portland 10, Oregon



in furniture plants, cabinetwork, sash and door plants and other woodworking manufacturing.

Among the features claimed for the new saw are: a new tooth design-style "Q" teeth which give an extremely shear angle on the face. They act like knives, planing the sides of the cut. The high back design of the teeth has added strength and rigidity needed for plywood sawing. An ample hook helps insure the point of the teeth cutting through first, eliminating slivering and splintering.

The teeth can be resharpened by hand filing or by using a hand gummer or automatic sharpener. The blade is made in 8", 10", 12" and 16" diameters in one standard thickness and number of teeth per diameter.

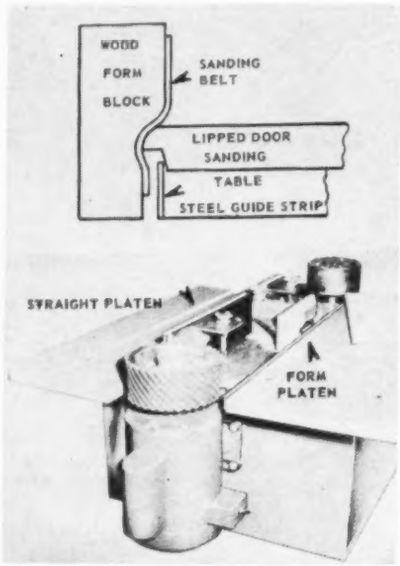
Manufacturer: Simonds Saw and Steel Co., Fitchburg, Mass.

Use postpaid card. Circle No. 21

Acme Edge Sander

A new concept in edge sanding is announced in the Acme edge sander, which claims to be the first budget-priced unit offered with an entirely new idea in profile-sanding as an added feature.

The machine incorporates two platens and tables. One table fronts on a conventional square edge-sanding platen of 20" length. The other positions to form blocks, fashioned to the shape



or profile of the workpiece, to mold the belt to the contour as the shaped edge is sanded, ground or polished.

Highly successful in the cabinet trades, it has proved of equal merit in producing superior finishes in less time in a wide variety of industries — furniture manufacturing, display and fixture manufacturers, pattern, model and hobby shops, the boat building industry, and for the great variety of applications required in grinding and sanding plastic products.

Standard units are supplied with 2¼" x 80" belts, offered in both aluminum-oxide and silicon-carbide abrasives. Optionally the machine can be furnished with 4" wide belts and platens. One-half or ¾ h.p. motors are standard, direct motor drive, and totally-enclosed to prevent entrance of sanding dust in the windings or bearings.

Manufacturer: R. A. Ness & Co., 5083 Elston Avenue, Chicago 30, Illinois.

Use postpaid card. Circle No. 22

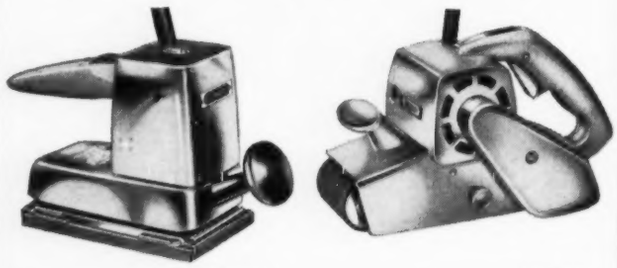
New Aluminum Pulls

The National Lock Company has added a trio of extruded aluminum pulls to its line of hardware trim for office furniture, furniture for the home, and kitchen cabinets.

Useful and attractive in a variety of applications, they may be ordered in virtually any length, and hold center-

New heavy-duty Stanley sanders

Cost less than any comparable sanders!



ORBITAL SANDER $49.95 **BELT SANDER $89.95**

- Fast-cutting, orbital-action sander for fine finishing, flush sanding. Perfect balance, thumb-tip switch gives you instant control. Wide, flat pad receives full power. Ideal for small work areas.
- Big, powerful belt sander runs cool. Cuts fast on wood, plastic—even metal. Belts change in one simple motion. Belt size: Standard 3" x 24". Also takes 3" x 23¾" belt. Out-of-way cord gives you full sanding freedom.

Find out how these Stanley sanders can save you a lot of hard work *and* hard-earned money. See them at your dealer's. Available in sturdy metal carrying cases, too.

Stanley Electric Tools, Div. of The Stanley Works, New Britain, Connecticut.

STANLEY ®

WE SPECIALIZE IN MAKING

Super Sharp Super Honed!

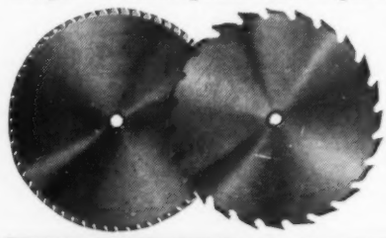
CONSISTENTLY ACCURATE

CARBIDE TIPPED SAWS!

Carbide tipped saws are not a side line with Meyers—it's our specialty. Each carbide tip has an extra fine grit, diamond honed, lapped edge for razor keen sharpness . . . for smooth cuts . . . for long life. Fine saw-steel blanks are engineered for carbide tipping to give you that *extra* performance at *no* extra cost.

MEYCO MAINLINE: An extra quality, low cost, standard line of saws, 6" to 16" diameters, with the famous UNI-CHIP grind (alternating double bevel and raker teeth) at low, low prices.

MEYCO CUSTOM LINE: Finest quality carbide tipped saws designed to meet specifications required to solve YOUR special problems. Enjoy the production advantages of finest quality MEYCO saws at prices no higher than ordinary carbide tipped blades. Write for Bulletin No. 58



MEYCO **W. F. MEYERS CO., Inc.**
BEDFORD, INDIANA
A famous name in precision tools since 1888

ing, according to the customer's planned use for them.

The pulls come in a number of anodized finishes, both bright and dull, including brass, gold, clear, and others.

Height of the pulls is approximately 5/8", protrusion from application surface, 21/32".

Illustrated is catalogue number 63-3255, with flared concave visor. The other two are 63-3288, which have a rounded, convex visor; and 63-3285, with "squared" visor.

Manufacturer: National Lock Co., Rockford, Ill.

Use postpaid card. Circle No. 23

Plexiglas Shield Guards Circular Saws

Brett-Guard recently completed an improvement on a saw guard. This safety device now comes with an improved aircraft type shatter resistant plexiglas shield that covers the saw allowing full vision. The new shield protects the operator from chips.

The new tool prevents physical contact with the blade and resists displacement while in use. The safety

guard is available for all circular table saws with blades of 6"-16" in diameter.

The guide-pin holes in the plexiglas shield make the setting up of unusual jobs fast, simple and accurate. The pressure pin is used as a hold-in for horizontal pressure. "C" clamps, spring hold-ins, and hold downs are eliminated.

Manufacturer: Brett-Guard Corp., Englewood, N.J.

Use postpaid card. Circle No. 24

DUO-FAST STAPLES
The right size, the right point...
For your fastening jobs
Whether it's furniture construction, woodworking jobs, crating work, carton assembling, industrial packaging, home construction, or a thousand other jobs, you can do it better, quicker, and cheaper with DUO-FAST Staples.
You get exactly the staple you need for your job with DUO-FAST, with a wide range of wire sizes, crown widths, types of points, wire finishes, and lengths from 5/32" to 1½".
DUO-FAST Staples team-up with DUO-FAST Tackers, Staplers, and Nailers to do a cost-cutting, production-increasing job for you.
HOLDING POWER ACTION
D-Point Legs diverge when driven
The Clinched Staple
The Outward Clinch
C-Point Legs toe-in when driven
DUO-FAST doubles the "stay" in staples with rosin-coating.
Fishhook Clinch Points penetrate 2 pieces then fishhook back.
Your DUO-FAST man can help you solve your fastening problems with DUO-FAST Staples. Write for his address, and a copy of the new DUO-FAST Idea Manual.
Over 50 DUO-FAST Sales and Service Offices in Principal Cities
FASTENER CORPORATION, 3752-54 River Road, Franklin Park, Ill.
DUO-FAST
Staplers
Tackers
Staples
Everything you need for tacking, stapling and nailing.

Enlarged Riping Capacity Featured By Boice-Crane

Increased ripping capacity is featured on new Monomaster saws.

Greatly enlarged ripping capacity is featured in two new 10" tablesaws which have been added to the Boice-Crane line of Monomaster saws. The fence-to-blade capacity of 49" is sufficient to split 8' plywood panels crosswise.

A feature of the ripping fence construction permits such panel sawing without the need of extension tables, although they are available if desired.

Motors up to 3 h.p. have been added, thus stepping up the capacity of all models of the Monomaster. Similar 3 h.p. motors also are now made available on Boice-Crane spindle shapers and 12" x 4" planers.

Manufacturer: Boice-Crane Co., 931 W. Central Ave., Toledo 6, Ohio.

Use postpaid card. Circle No. 25

New Water Resistant Vinyl Wood Adhesive

A one package, water resistant, vinyl assembly adhesive has been introduced by the Structural Products Division of National Starch and Chemical Corporation.

Called Wood-Lok 40-0224, the new product was said by National to withstand six to nine cycles of four hours soaking in water followed by 20 hours air drying.

National announced that this newest development in its Wood-Lok family is also the first such vinyl adhesive to provide water resistance without requiring the addition of catalyst. The company pointed out that this built-in efficiency would be of special advantage for furniture, finger joint and other woodworking operations where a high degree of resistance to humidity and water is desirable.

High bond strength, heat resistance and fast setting characteristics of vinyl based adhesives are fully retained in 40-0224. Wood-Lok 40-0224 is suitable for all types of assembly gluing. It is shipped ready for use and requires no heating or mixing.

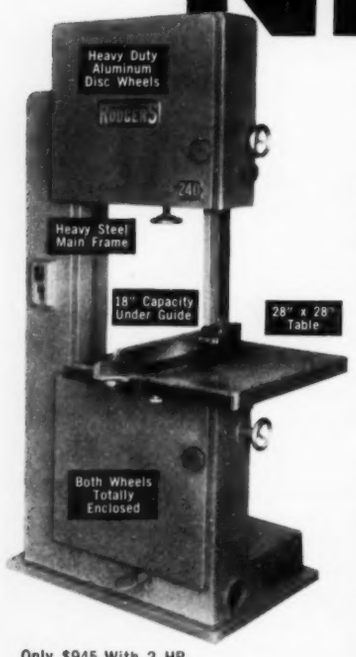
Manufacturer: Structural Division, National Starch and Chemical Corporation, 750 3rd Avenue, New York 17, N.Y.

Use postpaid card. Circle No. 26

Tigaclad Laminated Panels By Roddis Plywood Corp.

A major new development in laminated panels that gives outstanding protection to wood has been announced by the Roddis Plywood Corporation.

NEW



Only $945 With 2 HP, 3PH Motor FOB Factory

24" BAND SAW

New Model 240 has many features giving great strength, rigidity, durability, safety and efficiency: heavy duty aluminum disc wheels totally enclosed . . . both spindles in permanently sealed and lubricated, heavy-duty ball bearings . . . big 28" x 28" heavy, cast semi-steel table, with 3" edge flange . . . upper guide attached to geared guide post for quick, safe adjustments . . . all controls and adjustments made from operating position . . . ball bearing, direct drive motor, 100% overload capacity, totally enclosed.

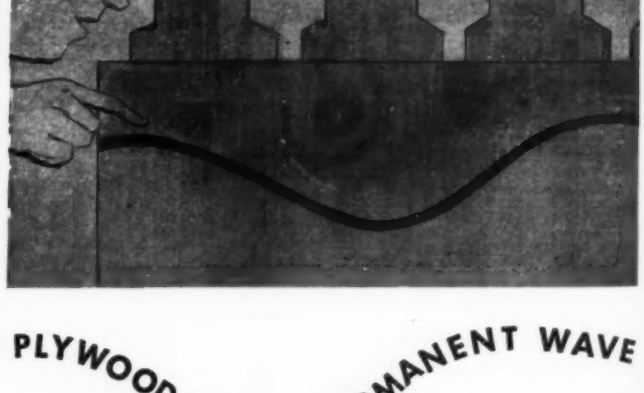
Send for complete information. Inquiries invited from dealers and manufacturers' representatives.

RODGERS

RODGERS MACHINERY MFG. COMPANY

2121 Belgrave Ave., Huntington Park, Calif. • Phone LU 7-2491

Quality Woodworking and Metalworking Equipment Since 1928



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It's there to stay, thanks to our electronic High Frequency Press. We specialize in forming plywood to required specifications. Stock or special order, any size, shape or form—if it's curved plywood you need, call us.

Complete line of plywood products

- Serpentine Fronts
- Laminated Curved Panels
- Core Banding—any construction
- Lumber Cores for Plywood
- Edge Banding—Veneer or Plastic
- Plastic Faced Panels
- Dimension Plywood—Fancy Faced

HENRY COUNTY PLYWOOD

RIDGEWAY, VIRGINIA • Phone MARTINSVILLE, VA., ME. 2-3035

Trademarked "Tigaclad," a new laminating concept is utilized in the new Roddis process.

The outstanding surface properties of Tigaclad are the result of a special sheet that has been impregnated with a diallyl phthalate resin and which is bonded by heat and pressure to veneered panel. The process is dry. The resin saturated sheet fuses with the real wood veneer faces to give outstanding protection, and the beauty of the wood is strikingly enhanced in the process.

Evaluated under NEMA standards for laminated thermosetting decorative sheets, Tigaclad panels meet or exceed the standards for resistance to: wear, scrubbing, boiling water, high temperatures, cigarette burns and stains. The surfaces are unaffected by solvents, chlorine bleaches, nail polish and dye. Even beet juice stains can easily be

wiped away. Under live steam the surface will not absorb moisture.

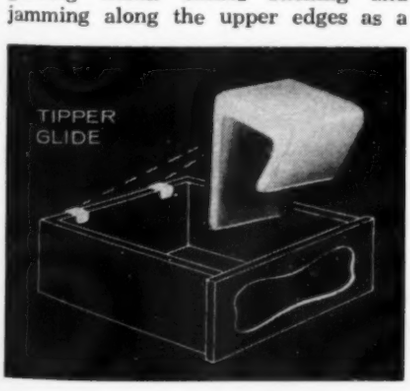
Roddis' exclusive phenolic Timblend wood shavings board is used for panel cores giving high warp resistance and excellent machinability. Thicknesses range from 9/16" to 1-3/16" with largest panel size being 48" x 96". All available species of wood veneer can be furnished with the exception of cypress and rosewood where the oily nature of the wood will not permit a good bond with the Tigaclad overlay.

Manufacturer: Roddis Plywood Corp., Marshfield, Wis.

Use postpaid card. Circle No. 27

Self-Lubricating Glides

To eliminate the tilt action in drawer guiding which causes sticking and jamming along the upper edges as a drawer is extended, the Reiss Manufacturing Corp. has devised a self-lubricating "Tipper Glide." This glide attaches to the upper drawer back or side and rides smoothly against the parting frame or tilt rail.



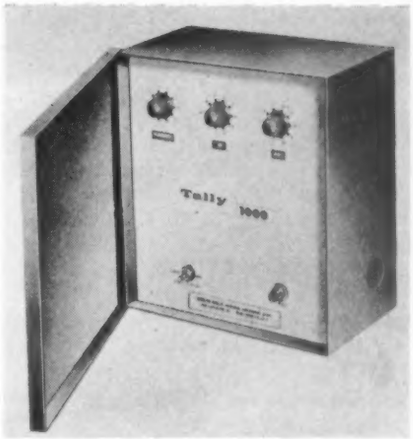
R-Way self-lubricating tipper glides are available in two sizes: #23-2 which has a ⅛" thick head and #23-6 with a 3/16" head. Use of glides also allows a manufacturer to cut down slightly on the size of drawer back and side components.

Manufacturer: R-Way Industrial Products, Box 718, Sheboygan, Wis.

Use postpaid card. Circle No. 28

Pre-Determined Counter

The Tally "1000" pre-determined counter is applicable to hundreds of industries and machines, where accurate, positive counting is required for such operations as packaging, batching, cutting of specific lengths, controlling of sequential operations, etc.

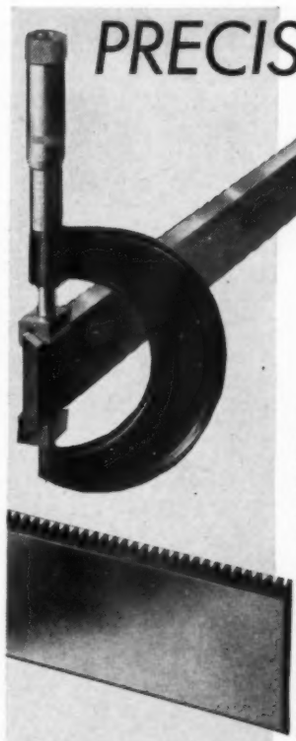


PRECISION AND QUALITY
GO
HAND IN HAND
WITH
BADGER
SHAPER CUTTERS

Year after year . . . bar after bar . . . BADGER Shaper Steel is always precisely the same! With such reliable consistency, you can make mating knives from any bar with confidence **but only if the stock is BADGER!** This precision pays dividends because you never need waste any short ends.

Just as you can count on BADGER **precision** year after year, you can also count on getting only the highest quality high speed steel, hardened to very close limits. Every heat-treat operation is electronically controlled and chart recorded, every bar is passed through two separate inspections to determine the proper Rockwell hardness. All high speed steel bars are made of M-2 moly-tungsten analysis — the best grade for all-around performance for high production jobs. All these consistent, reliable standards means top performance and **knives that operators trust!** Shipment the same day from stock of any size!

For cutting glue lines, plastics, masonite, chipboard, and composition materials. BADGER CARBIDE TIPPED Shaper Knives are made with the same precision stock to your special patterns. Straight cutting knives shipped from stock.



Notched shaper steel is recommended for utmost safety and micrometer adjustment. Particularly advisable for cutting deep patterns and for spindle speeds over 4000 R.P.M.

A whole family of BADGER Shaper Collars — all made to the same .0005 limits of precision! Such accuracy enables you to interchange all collars with mating parts of the same size. Shielded bearings, simple locking screw design, high tensile steel are features that mean long life with negligible maintenance.

NOTCHED-SOLID | NOTCHED-BALL BEARING | SOLID-BALL BEARING | SOLID-SOLID

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Engineers to the Woodworking Industry

WISCONSIN KNIFE WORKS • BELOIT, WIS

The Tally "1000" may be actuated by photo-electric control, micro-switch, impact switch, limit switch, pressure switch, flow meter, or any type of single pole, single throw switching device. It may be used to control motors, heavy duty solenoids, relays, conveyors, filling machines, printing presses, choppers, shears valves, kickers and markers, plus many other devices that are required for a particular application.

Manufacturer: Hobson Miller Machinery Corp., 280 Lafayette St., New York 12, N.Y.

Use postpaid card. Circle No. 29

Wall Chart

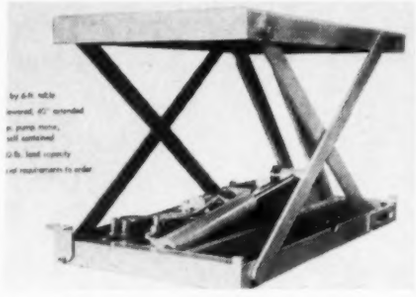
A reference table for engineers and other executives in wall chart form has been published by Precision Equipment Co. Included are common conversions such as inches to centimeters or watts to h.p., as well as many conversions that are difficult to locate in reference manuals. The Wall Chart of Conversion Factors is free.

Manufacturer: Precision Equipment Co., 4411 E. Ravenswood Ave., Chicago 40, Ill.

Use postpaid card. Circle No. 30

Scissor Lifts

The Kvalheim Machinery Co., Petaluma, Calif. has recently begun the manufacture of scissor lifts. Loads of plywood or other similar material can



be raised to a comfortable level for feeding and off-bearing by actuating a foot switch or using automatic devices.

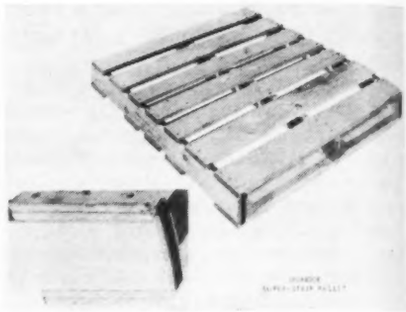
The scissor lift has a 3' x 6' table. This can be raised and lowered as desired from 9" up to 40". The load capacity is 4000 lbs. with a good safety factor. A self-contained 1 h.p. pump motor is used in conjunction with the heavy duty cylinder to actuate the table.

Manufacturer: Kvalheim Machinery Co., Petaluma, Calif.

Use postpaid card. Circle No. 31

Super-Strip Pallets Double Pallet Life

The Signode Steel Strapping Company unveiled a new Signode super-



strip pallet at the National Wooden Pallet Manufacturers Association meeting in mid-February. Costing just a little more than standard warehouse pallets, the company claims that these pallets will last more than twice as long. Other features of this pallet include two and four-way entry, elimination of snagging, and simple construction.

Longer Life for Band Saw Blades!

Wright

BAND SAW GUIDE

For all types of commercial band saws . . . standard equipment on many. The Wright Guide protects and extends saw life, is virtually frictionless. Replaceable hardened steel jaws, dustless, easy to lubricate. Available in 4 sizes.

BALL BEARING GUIDE WHEEL

Vastly reduces friction at points of contact, eliminates wear and tear and resulting saw breakage. 3 sizes, for Wright and other guides.

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BLACK DIAMOND

SAW & MACHINE WORKS

80 NORTH AVE. NATICK, MASS.

The second most important tool . . . for every woodworking shop

A VERSATILE

W&H

MOLDER-PLANER

is second only to a saw . . . it molds, planes and rabbets.

OVER 1000 PATTERNS AVAILABLE

FROM PINE PANELING TO FULL ROUND

12 new patented features. Safety Anti-kickback and guard make this one of the safest power tools available — Automatic Hold-Down. A low cost 3-in-1 tool: Planes up to 14" wide boards (7" each pass, reversing). Molds stock 1/8" to 8 1/4" in depth to a satin finish. Rabbets easily made. Set-up change-over made in minutes — makes the unit extraordinarily versatile. Models from $79.95 to $199.50 f.o.b., Milford, New Hampshire. A portable power tool that pays for itself on the first few jobs. "Your savings pile up as your shavings pile up".

41 Patterns of standard molding cutters available from stock.

For full details write:

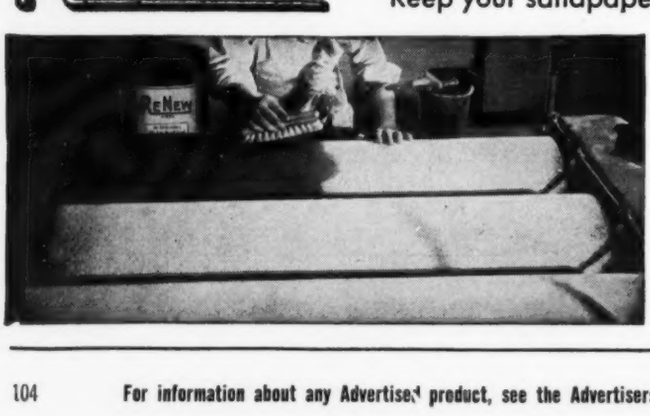
WILLIAMS & HUSSEY MACHINE CORP.

CLINTON ST., MILFORD, NEW HAMPSHIRE

ReNew GIVES NEW LIFE TO SANDPAPER AND **CUTS SANDING COST 50%**

Keep your sandpaper cutting for you with ReNew. Apply . . . let it dissolve the pitch or resin . . . then brush it off with a scrubbing brush. It's so easy and quick and makes your sandpaper last at least 3 times as long.

ReNew increases sanding machine efficiency . . . paper lasts longer . . . less changes necessary. ReNew is non-inflammable.



We also have a complete line of maintenance paints. Write for prices.

MOLINE PAINT MFG. CO.

MOLINE ILLINOIS

The Signode super-strip pallet is a wooden warehouse pallet that has been reinforced with a specially made ¾" x .035" plastic coated steel strapping. The strapping has been designed and specially treated to bend well and be nailable.

Reception of the new pallet at the Hollywood meeting was very enthusiastic. The new pallets may be purchased from Signode licensed pallet manufacturers throughout the United States and Canada.

Manufacturer: Signode Steel Strapping Company, 2600 North Western Avenue, Chicago 47, Illinois.

Use postpaid card. Circle No. 32

Combination Machine By Delta

A new combination belt and disc finishing machine, capable of performing 90% of all shop finishing operations, has been introduced by Delta Power Tool Division.

The Delta combination finishing machine, with standard 4" abrasive belt

and 12" abrasive disc, was designed for use in wood and metal pattern shops, sign and display shops, and all types of maintenance shops throughout industry. It can handle all finishing operations on wood and plastic.

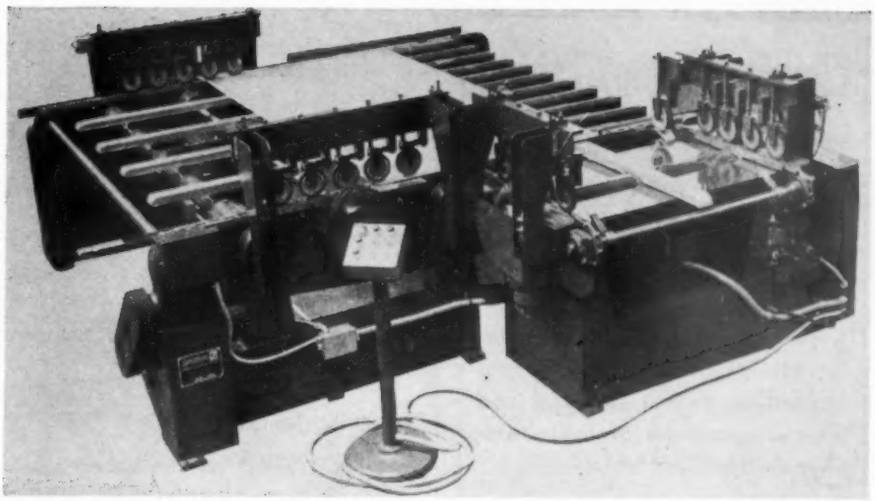
The new machine is particularly suitable for sharpening tools. A specially designed idler drum guard facilitates hollow grinding of wood chisels, lathe chisels, carving tools and plane irons.

Manufacturer: Delta Power Tool Div., Rockwell Manufacturing Co., 267 N. Lexington Ave., Pittsburgh 8, Pa.

Use postpaid card. Circle No. 33

Jenkins Introduces Panel Sizer

This new automatic panel sizer has been introduced by the Jenkins Div., Kohler-Joa Corp. It is designed for sizing and splitting 4' x 28' hardboard, plywood, particle board and fibreboard as it comes from the press or dryer. The machine has chain feed in both

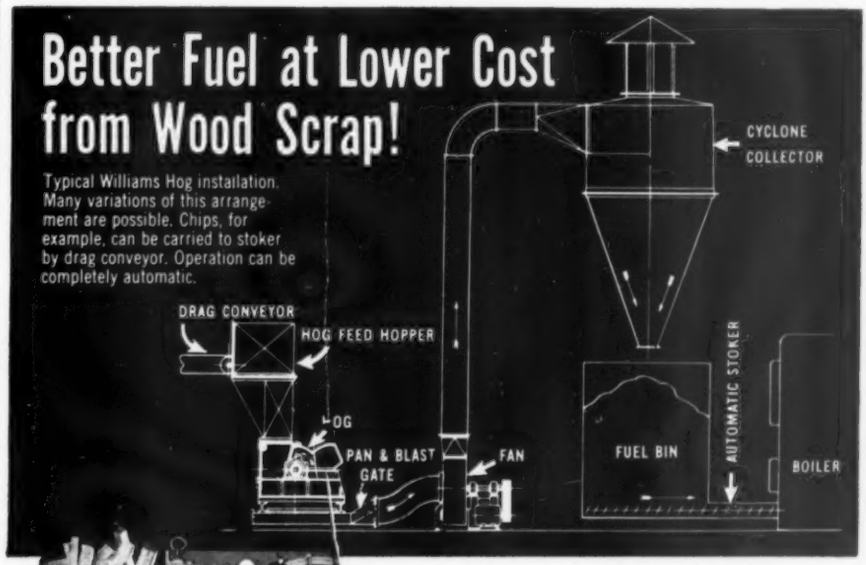


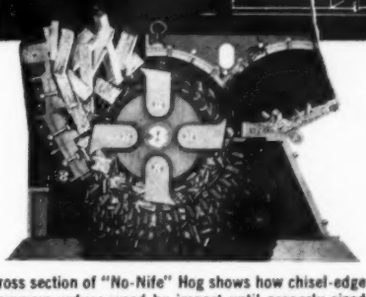
passes, spring loaded rubber-wheel holddowns and an automatic right angle transfer table that requires no manual attention.

Each unit has a separate feed drive so that optimum feed speeds can be set for each pass. With an infeed regulating gate on the ripsaw, this latest

Better Fuel at Lower Cost from Wood Scrap!

Typical Williams Hog installation. Many variations of this arrangement are possible. Chips, for example, can be carried to stoker by drag conveyor. Operation can be completely automatic.





Cross section of "No-Nife" Hog shows how chisel-edge hammers reduce wood by impact until properly sized to pass through grates in bottom of hog.

WILLIAMS "No-Nife" HOGS

Wood scrap reduced to chips in a "No-Nife" Hog is almost 100% combustible—cheapest of fuels for heat and power. Unhogged, wood won't burn evenly, restricts air flow, smothers fire, causes excessive smoke and soot.

Hogging also cuts handling cost up to 75%. One man can handle as much tonnage in chips as three men handling long, awkward, odd-shaped pieces. Labor savings alone pay for most "No-Nife" Hog installations in a few months. *Write for brochure today.*

A COMPLETE LINE:
- Hogs, Grinders & Shredders
- Air & Mechanical Separators
- Vibrating Screens
- Cyclone Collectors
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For Manufacturers, Dealers Anyone Who Works With VENEER, PLYWOOD, CUT LUMBER, BOXES, Etc.

A handy book of accurate tables for quickly determining square feet contents of veneer plywood and the cubic contents of logs, complete to fractional units.

Users tell us it pays for itself in a month in time saved and errors eliminated.

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Fourth Edition Now Available

Mrs. A. Graham Click
Click's Veneer Tables
P.O. BOX W-147
ELKIN, NORTH CAROLINA

result of Jenkins engineering lends itself readily to manual, semi-automatic or fully automatic panel feeding. The machine is very close coupled and transfer can be accomplished with or without panel overlapping, depending on production demands. The transfer can be equipped with multiple top holddown rollers if stock has a tendency to warp.

Manufacturer: Kohler-Joa Corp., Sheboygan Falls, Wis.

Use postpaid card. Circle No. 34

New Slide-Glide Line

"Slide-Glides," plastic drawer hardware, is now offered by Plastiglide Manufacturing Corp.

The most outstanding feature of slide-glides is the new "3-D guide system." This consists of a "Hi-Flex trackholder," a guide block attached to the back of the drawer to assure a smooth glide over the track on the frame, and two "side-saddles," right angle guides attached to the front corners of the frame, providing a perfect three-sided balance when the drawer is opened and closed. The "trackholder" guide block can be stapled, screwed or nailed on the bottom of the back wall or on the top, where it is used to ride on a center wood channel above the drawer and glides over the "side-saddles" on the bottom.

Another major feature is the two special tabs which are stapled to the underside of the drawer preventing the loosening of the "trackholder" through constant use.

Manufacturer: Plastiglide Manufacturing Corp., 1757 Stanford St., Santa Monica, Calif.

Use postpaid card. Circle No. 35

Stub Linebar Resaw

The McDonough Manufacturing Company has a new stub linebar resaw which, they say, solves the problem of resawing slabs, small spit logs, flitches and cants on a single low-cost resaw. Several unique features are responsible, the manufacturer says.

The feedworks, which is an integral part of the machine, features a short fence with two power driven fence rolls, an 11" diameter power driven pivoting press roll and built-in slab table that permits feeding feather-edge slabs and flitches without hanging up.

The fence is controlled by a full range set lever providing a maximum 6" opening inside the saw line. The pivoting press roll, tensioned by an air cylinder, opens to 12" outside the saw line and the maximum depth of cut is 22".

A five speed transmission for driving the feedworks from the lower wheel

FREE Sample
Send request on your letterhead for liberal sample free. No obligation.

WOODWORKERS SAY: "Durham's Rock-Hard Water Putty covers up Nature's mistakes as well as our own. It handles beautifully—finishes smooth as velvet."

Durham's Water Putty has great strength and adhesion. This modern plastic fills knotholes or cracks, replaces chips, fills and smooths off edges of plywood, etc. *Absolutely does not shrink.* Comes in 25, 50 and 100-lb. drums in powder form—keeps indefinitely. Mix with water as needed. Send now for free sample and prices.

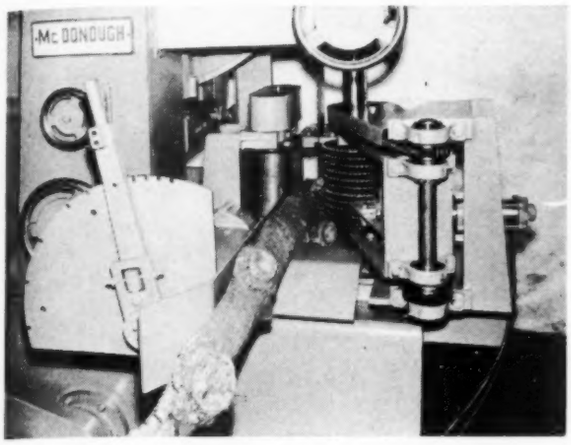
Donald Durham Co., Box 804-K, Des Moines 4, Ia.

The PLASTIC Repair Material in POWDER Form

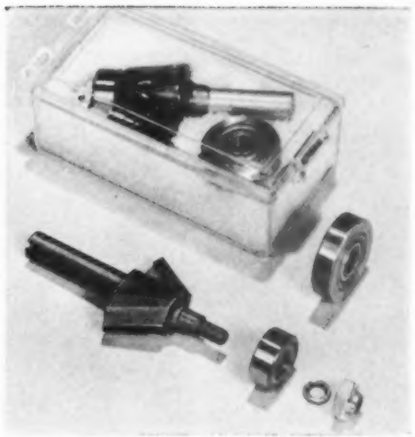
BeVeG VENEERS

OUR BEST ONLY IN ALL FINE NORTHERN HARDWOOD FACE VENEERS

BIRDS EYE VENEER CO.
BOX 317 ESCANABA, MICH.



McDonough stub linebar resaw.



shaft eliminates a separate and expensive variable speed mechanism. The machine is shipped completely assembled except for the two band wheels which are easily installed.

Other features of this new McDonough stub linebar resaw include one piece high tensile iron top wheel with non-rotating shaft, extra heavy lower wheel, heavy duty Timken bearings, ultra sensitive double column type strain, quick opening full width saw guides and anti-friction bearings throughout the feedworks.

This new McDonough stub linebar resaw is available with 54", 62" and 6' wheels in both right hand and left hand models. A tilting feedworks for sawing bevel siding and a center sawing mechanism are available as extra accessories.

Manufacturer: McDonough Manufacturing Company, Eau Claire, Wisconsin.

Use postpaid card. Circle No. 36

Trimmer Equipped With Extra Guide

Immediate adoption of a new packaging policy on its O. C. E. No. 2-WT (25° taper) trimmer item, to provide users with an extra ball bearing guide of a different diameter at no extra cost, has been announced by Price & Rutzebeck.

Equipping the tool with an extra guide means that the cutter actually can be dulled twice before a resharpening is necessary. The tool is widely used by plastic fabricators to trim large overhangs and to trim multiple cores from a single sheet.

The 2-WT model is one of seven specialized plastic trimmers in the O.C.E. (Oakland Carbide Engineering) line.

Manufacturer: Price & Rutzebeck, Post Office Box 30, Hayward, California.

Use postpaid card. Circle No. 37

Combination Ripsaw

A combination panel crosscut and rip saw has been introduced by Multiscore, Inc. This machine, equipped with

if it has all these features . . . it's a MOAK No. 7 SHAPER

SPEEDS UP TO 12,000 R.P.M.

Standard speed is 8350 R.P.M. But with the ¾" spindle, speeds up to 12000 R.P.M. can be furnished at no extra cost.

SIMPLE, FAST, SURE ADJUSTMENT

The yoke can be raised or lowered by a quick acting screw within easy reach of the operator, and can be held at any point by a handy locking device.

POSITIVE LUBRICATION MINIMIZES HEATING

A special Moak oiling construction assures constant lubrication and at the same time prevents over-oiling, thus keeping heating at a minimum at all times.

TABLE GROUND AS SMOOTH AS GLASS

So smooth a man can feed material across it almost effortlessly. Furthermore, the table is at a perfect right angle to the spindle and is true and level over its whole surface.

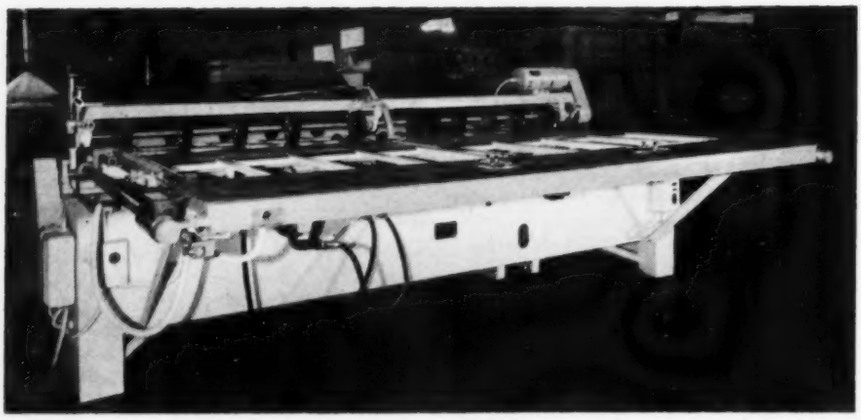
BASE PROVIDES PLENTY OF FOOT ROOM

Moak has designed the base to give the operator lots of convenient foot space close to his work. This makes for operator comfort and helps speed up work.

You don't buy a shaper every day. When you do, buy the best. For complete information on the Moak Single Spindle Shaper write for our illustrated bulletin.

COMPLETE PROTECTION FOR THE OPERATOR

Entire pulley and belt are covered with a cast iron guard that prevents chips from entering the motor or interfering with the belt. A guard for the knives is available as an extra.



multiple heads, is designed to cross-cut stock 4' x 8' panels. Special machines large enough to handle 5' x 10' sheets are available. Material is fed through the saws by a combination of hydraulic and electrical power, both variable.

The manufacturer claims extreme accuracy and cleaness of cut on all types of sheet material. The machine is designed so that two stock 4' panels may be ripped lengthwise at the same time. Stock machines for 4' x 8' panels are equipped with six saws, all of which may be positioned or removed without disturbing the arbor.

Manufacturer: Multiscore, Inc., 1123 West 51st St., Seattle 7, Washington.

Use postpaid card Circle No. 38

New Medallion Group By Plastiglide

A new group of decorative medallions has been added to the Plastiglide medallion line. The group contains a variety of distinctive shapes for occasional tables, cabinets, upholstered furniture, headboards, etc.

The medallions have a beautiful high gloss, brass plated steel finish protected by a pressure sensitive paper covering. The medallions can be attached and the furniture shipped with the protective covering intact. The retailer can remove the paper for display or leave it in place for the customer to remove. The gleaming, perfect finish is protected throughout the manufacturing and shipping cycle.

Manufacturer: Plastiglide Manufacturing Corporation, 1757 Stanford Street, Santa Monica, California.

Use postpaid card. Circle No. 39

Help For Repairs

A number of plant repair jobs can be handled with a new epoxy-polyamide chemical compound, Plastic Mastic, which is being distributed by Williamson Adhesives, Inc. This all-purpose

FAMOWOOD... *the AMAZING...*

ALL-PURPOSE PLASTIC for wood finishes!

Applies like putty... Sticks like glue!

FAMOWOOD is the answer . . . where wood finishes are important. Simple to use . . . efficient, lasting, time-saving, when filling wood cracks, gouges, nail and screw holes or correcting defects. CAN BE USED UNDER FIBERGLASS. Dries quickly, doesn't shrink. Stays put under adverse conditions. FAMOWOOD sands easily, does not gum up sander. Takes spirit dye stains freely. Waterproof and weatherproof when properly applied. Ready to use—"right out of the can." Fifteen matching colors... with amazing matchless wood finishes.

USED BY... FURNITURE MFGS. • SASH AND DOOR MFGS. • CABINET MAKERS • CONTRACTORS • BOAT BUILDERS PAINTERS • AIRCRAFT PLANTS • PATTERN SHOPS • HOME BUILDERS • ALL WOOD PRODUCTS

FAMOWOOD descriptive literature and price list on request.
Distributor & Dealer inquiries invited, write Dept. 718

BEVERLY MANUFACTURING COMPANY

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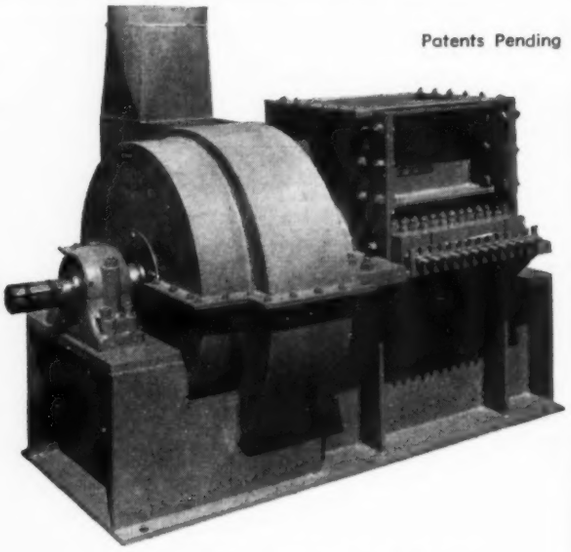
Manufacturers of . . . FAMOWOOD • FAMOGLAZE • FAMOSOLVENT

Patents Pending



Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer, Round-up and Sandy, Wet, Stringy Bark, Conveyor fed—no attendant required. Positively protected from major damage by tramp steel. All connections locked—nothing to shake loose. Maintenance costs unbelievably low.

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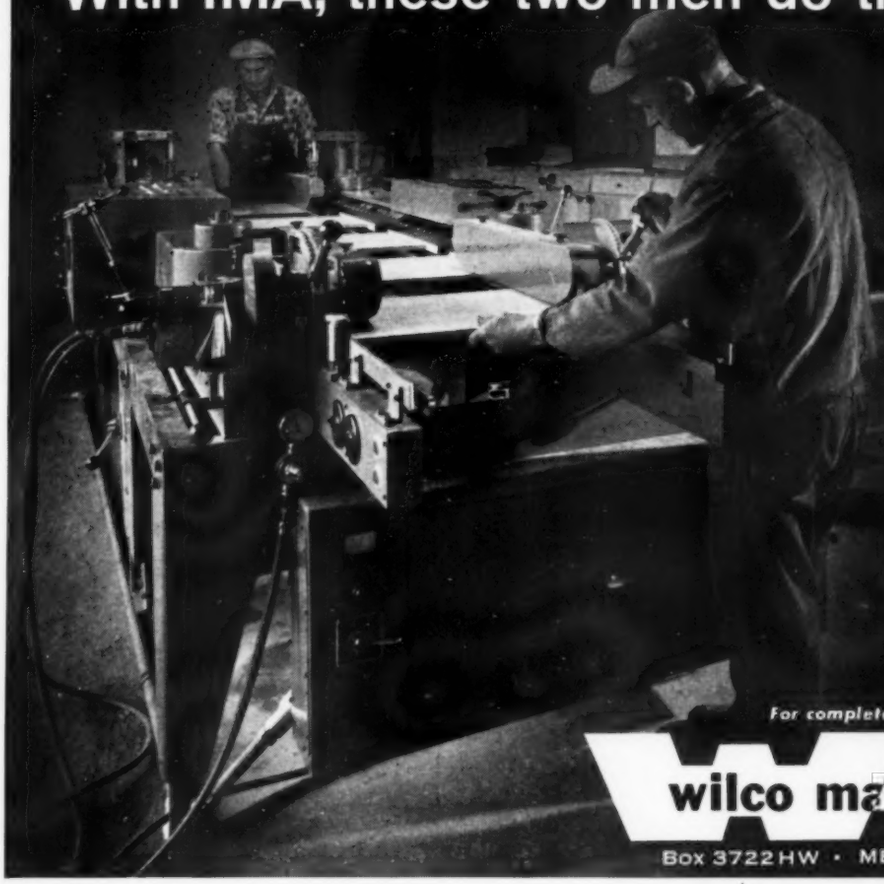
JACKSONVILLE BLOW PIPE CO.

ALSO MONTGOMERY'S BLOW-RITE MATERIAL-HANDLING BLOWERS MONTGOMERY BLOW-RITE DUST-COLLECTING SYSTEMS AND MONTGOMERY'S "BURN-RITE" INCINERATORS

P.O. BOX 3687 JACKSONVILLE, FLORIDA

"With IMA, these two men do the work of ten"



writes A. E. Starke
of Hanover Kitchens, Ltd.
Hanover, Ontario, Canada

". . . they are working shorter hours . . . they have cleaned up the terrific back log of material that required edge banding when the IMA went into operation," Mr. Starke says.

"The IMA edge bander has been running nine hours a day since we put it into operation which is almost five months now, and the only item that we have replaced to date is one of the heating bands."

IMA is the only straight-line, completely automatic production machine that applies veneer and plastic edge strips to particle board, plywood or lumber cores.

For complete information phone, wire or write

wilco machine works, inc.

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Better Production.. Better Profits ..... With Better Bits

For many years leading manufacturers have proven that Lineberry Router Bits are BETTER BITS in every way. The Lineberry Red Tang is your guarantee of fast cutting, smooth finishing and true running bits. In every size, shape and length. Write, phone or wire for prices on your standard or special needs.

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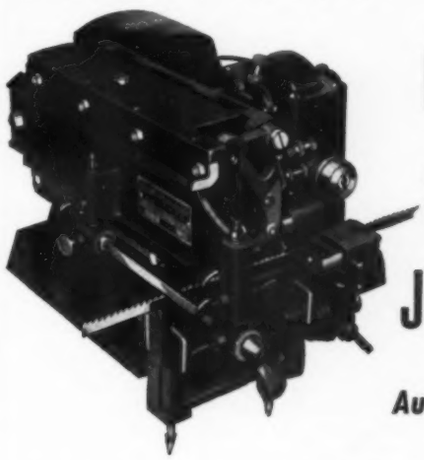
DOES 4 MENS' WORK



FILES
SETS
JOINTS
Automatically

Without Taking Saw From Sharpener

Simply clamp band saw in position. Every operation done with unequaled precision and accuracy. Stops saw cracking and breakage. Saws last longer, cut better.

Write for K5 Literature—NEW 1960 Catalog.

WARDWELL
Manufacturing Co.
3806 Ridge Road
Cleveland 9, Ohio

Makers of Largest Line of Saw Filing Machines

general repair material is permanently effective with almost every known material such as concrete, metals, wood, ceramics, glass, rubber, cloth, paper products and most plastics.

Plastic Mastic is hard to the touch in four hours can be walked on in eight hours. Curing can be speeded by application of heat. It is being used on many construction and installation jobs as well as for repairs.

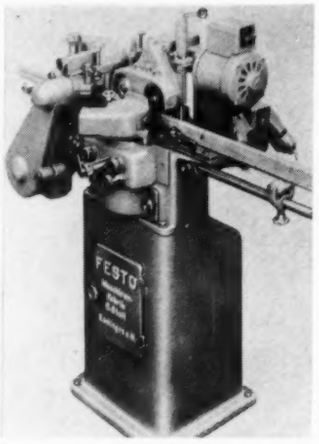
Manufacturer: Williamson Adhesives, Inc., 8220 Kimball Ave., Skokie, Ill.

Use postpaid card. Circle No. 40

Three-Spindle Molder

The two-spindle molder introduced a few years ago by Festo Woodworking Machines has now been improved by the addition of a third head. This head works as the top head and permits finishing three sides at a time. The third head can be detached when not needed.

A further important step is the possibility of changing the feed from the standard vertical to horizontal pressure. This permits running narrow stock such as dowels in multiples. This new three-spindle molder will find utilization for many items—from toothpicks to small moldings.



Manufacturer: Festo Woodworking Machines, 66 Mariono Ave., Port Washington, N.Y.

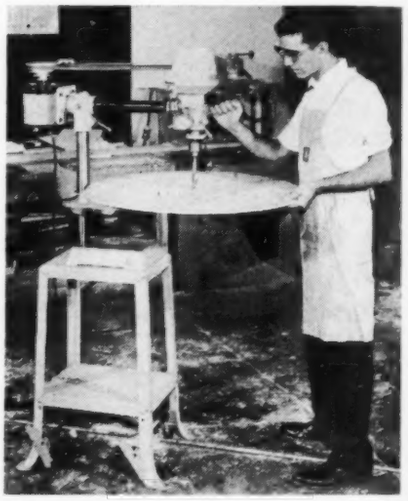
Use postpaid card. Circle No. 41

Big Capacity Drill Press

A new low-cost radial drill press, that offers unequalled capacity and flexibility in its class and price range, has been introduced by Rockwell Manufacturing Company's Delta Power Tool Division.

The new Delta radial drill press is designed to drill to the center, or any point, of a 32" square and is ideal for rapid multiple drilling operations, horizontal drilling and angular drilling.

Capable of doing accurate sanding, shaping, routing, mortising, plug cutting, and many other operations, the new machine is particularly applicable for pattern, woodworking and furniture shops and light industry.



Engineered, according to the manufacturer, to do operations impossible on conventional type drill presses, the radial drill press features a head that swivels 360° around the column and tilts more than 90° to the right and left. The work always remains parallel with the base.

Manufacturer: Rockwell Mfg. Co., Delta Power Tool Div., 400 N. Lexington Ave., Pittsburgh 8, Pa.

Use postpaid card. Circle No. 42

Four Finishes In Legs

The Wilkenson Manufacturing Company is now offering furniture legs in four finishes. These are: a tapered metal seamless leg in brass, the same leg in a coppertone; a pewter finished square leg and an unfinished natural hardwood leg. All of the metal legs have self-leveling swivel glide tip and are available in sizes from 3"-28".

Manufacturer: Wilkenson Manufacturing Co., 2916 W. Lake St., Chicago 12, Ill.

Use postpaid card. Circle No. 43

Put this rugged new sander to work on your toughest jobs

FAST, SMOOTH ACTION FOR SANDING WOODS AND OTHER MATERIALS

The new Model OE-900 electric power sander, with its extra large sanding orbit and big pad permit rapid stock removal on either wood or metal parts . . . Weighing only 8½ lbs., it is shockproof insulated and built to minimize noise and vibration — all of which combine for *fast, safe, easy* operation.

Sundstrand also has a complete line of air-powered sanders that assure you a size and type for every job. For complete information on Sundstrand Model OE-900 electric sander, write for Bulletin OE-900. Bulletin 2102 tells about Sundstrand air-powered sanders.

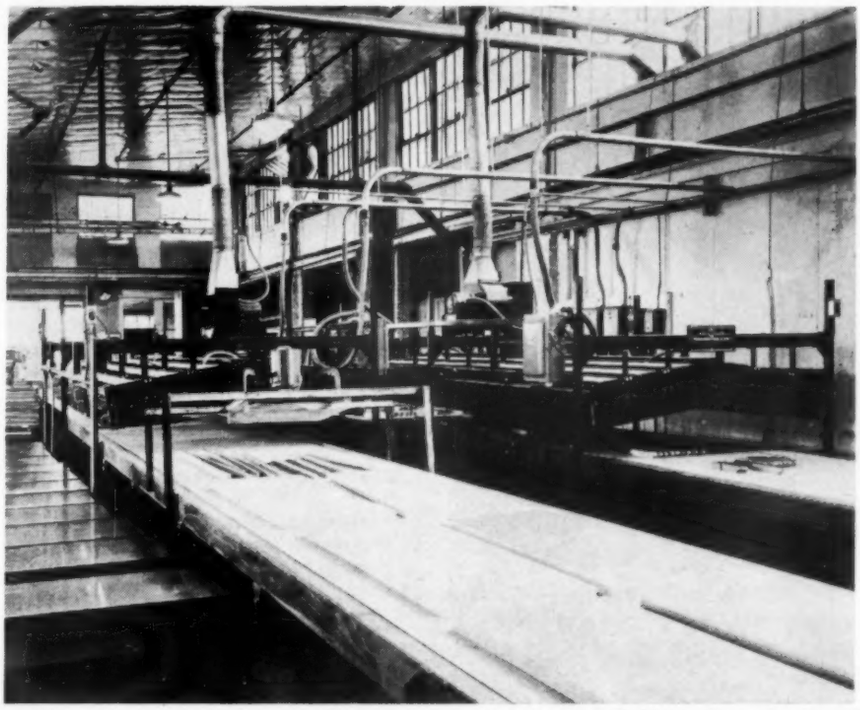
YOU SAVE TIME AND MONEY WITH THESE FEATURES:

- Single-phase motor drive has no belts or gears to wear out or cause trouble.
- High starting torque, constant speed operation virtually rule out overloading due to misapplication.
- Lifetime lubricated bearings help reduce maintenance.
- Sturdy, advanced design eliminates need for commutator, brushes, capacitor, or centrifugal switch.

MARK OF SUNDSTRAND RELY-ABILITY

SUNDSTRAND MACHINE TOOL
BELVIDERE, ILLINOIS
Division of SUNDSTRAND CORPORATION

Firm Cuts Drying Time From Two Hours To Eight Minutes



Drying time for parts of furniture was cut from two hours to eight minutes by use of 14′ driQuik ceramic type electric ovens at the Indiana Cabinet Co., Dubois, Ind., according to L. J. Brelage, general manager of the plant.

The driQuik ovens, which are manufactured by the Dry Clime Lamp Corp., are part of two new conveyorized finishing lines which were set in the plant recently.

On the first finishing line, the furniture parts pass through a roller coater which applies the base coat. The parts are then carried on the conveyor for a three-minute flash-off period, through the infrared oven for two minutes, and finish with a three-minute cooling off period. The second finishing line is a duplicate of the first, except that the parts pass through a horizontal graining machine first. The drying periods are the same length.

THE RIGHT COMBINATION FOR
FASTER INSTALLATION...

No. 2000 DRAWER SLIDE

WITH Washington DRAWER SLIDES

There is a Washington Drawer Slide for every requirement. Each is designed for maximum performance and economy for the specific job. *All* are quality-built of finest materials to assure long life and smooth operation. All are designed for quick and trouble-free installations.

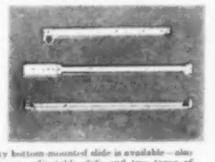
PRECISION ALIGNMENT

Offset mounting screw holes on right and left slides permit adjacent use on narrow partitions; slotted mounting holes for precise adjustment.

EASY TO INSTALL

Installs on face frames narrow as ¼". No mortising required in sides of drawer for installation.

MANY SIZES AND STYLES



A quality bottom-mounted slide is available—also an economy, adjustable slide and two types of sliding shelf guides.

WASHINGTON STEEL PRODUCTS, INC.
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CANADA: General Sales Syndicate,
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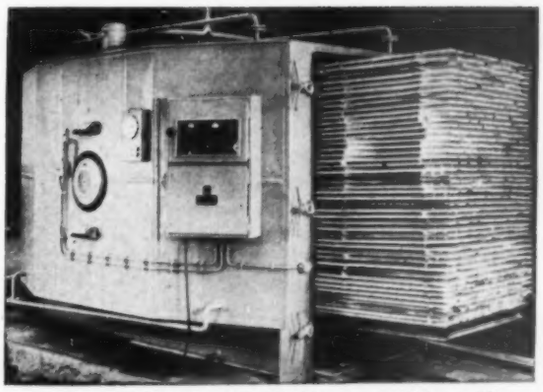
HILDEBRAND DRY KILNS
ALSO FOR THE FURNITURE MANUFACTURER.



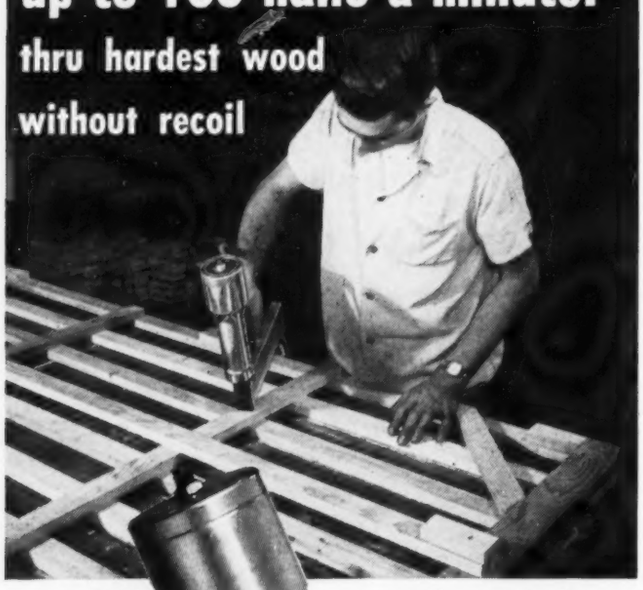
Hildebrand Lilliput Dryer HD 74/111 as a complete machine.

GREATER PRODUCTION
BETTER PROCESSING
FASTER DELIVERY
with our modern drying machines.

We supply all-metal machines ready for connection from 400 board feet up to large capacity units with electric, steam or hot water heating, as well as equipment for installation in self-built drying compartments.

ROBERT HILDEBRAND CANADA LIMITED
2533 Wharton Glen Ave. Summerville P.O., Ontario
Phone Toronto AT 9-8671

up to 160 nails a minute!
thru hardest wood
without recoil



increases production **150%**

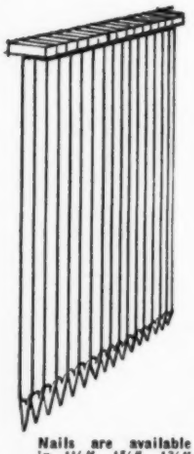
the NEW
POWER-LINE
ARN-3B
NAILER
drives 2-inch nails on low air pressure

The patented adjustable latch mechanism on this superior nailer insures that each nail is accurately set to the desired depth. Driving up to 2 inch nails on low air pressure, and through the hardest of woods without recoil, the ARN-3B performs at a rate of up to 160 nails per minute.

You get consistently uniform nailing with up to 150% increased production.

Ideal for nailing furniture frames, box spring frames, crating and general production.

This automatic nailer can pay for itself in less than 3 months. We invite you to try this truly remarkable tool.



Nails are available in 1½", 1⅝", 1¾" and 2" lengths—come cohered together like staples.

For literature and information write:

POWER-LINE "All the Name Implies"
SALES INC.
540 S. MONTEREY PASS ROAD
MONTEREY PARK, CALIF.
BRANCH PLANT: 1561 PROSPECT ST. HIGH POINT, NO. CAROLINA
Stapling Machines • Nailing Machines • Hog Ring Machines

Each driQuik oven has two temperature zones, each controlled by a cyclical timer, which is capable of regulating temperature to within one degree of the desired heat and which can be changed by turning a knob. For most parts, according to Mr. Brelage, the oven drying the base coats is set at 25% temperature setting. The oven drying the grained finish is set at 35% of rated capacity.

Manufacturer: Dry Clime Lamp Corp., Greensburg, Ind.

Use postpaid card. Circle No. 45

New Decorative Plastic Laminate Shown in New York

The first use on furniture of a new decorative laminated plastic finish known as Daponite, was shown in early November at the National Hotel Exposition in New York. Introduced by Thonet Industries, Inc., the Daponite decorative laminated surface combines resistance to heat, cigarette burns and stains with style and durability.

Daponite laminated plastic is produced from Dapon resin, made by Food Machinery & Chemical Corp. Like many scientific discoveries now available to industry, this plastic was developed for use by the rocket and missile industries. Now the collective development efforts of Thonet and FMC make Daponite available to the furniture industry.

Daponite is said to be applicable to all printed patterns and designs normally used in institutional and home furniture. It also can be applied by temperature and pressure to woods and veneers giving them the advantages associated with laminated plastics plus beauty.

Among the special characteristics of the Daponite line, as being developed by Thonet, is the freedom and flexibility allowed designers by eliminating the solid white or black line found at the edge of some plastic laminated surfaces.

Manufacturer: Food Machinery & Chemical Corp., Chrysler Bldg. East, 161 East 42nd Street, New York 17, New York.

Use postpaid card. Circle No. 46

Decorative Metallic Tape

A vastly improved adhesive backing for its line of metalized mylar tapes is a recent innovation of coating products, Englewood, N. J.

"Mirro Brite" mylar tape is a highly polished, metallized plastic laminate ranging in widths from ½" to 1", spooled into a roll approximately 100 yd in length. The metallized plastic material is backed with a high tack coating of pressure sensitive adhesive, for easy application to all smooth, flat surfaces.

Many industrial applications have been discovered for this decorative plastic trim which looks like metal, altho it is lighter in weight, much easier to apply, and costs considerably less than actual metal trim.

Samples of the metalized tapes in various patterns and colors, a descriptive brochure, and a price card are available from the manufacturer.

Manufacturer: R. H. Goodman, Coating Products Inc., 101 W. Forest Ave., Englewood, New Jersey.

Use postpaid card. Circle No. 47

Industry Notes

HPI Meets in New York

The Hardwood Plywood Institute held its annual spring meeting in New York City the first week of March. Members attending heard profitable discussions on these topics: "Veneer Outlook for 1960," "What's What in Adhesives," "High Frequency Gluing," "Paper Glue Line," "Air as an Extender," "Resin Quality Control and Technical Service," "Technological Changes in Plywood Machinery," and "How and Where Does Particle Board Effect Hardwood Plywood?" Another program highlight was S. W. Antoville's review of his 40 years in the plywood business.

The board of directors approved a new glue bond policy prepared by William J. Groah, Jr., laboratory manager. This policy covers plywood grades and glue line type set forth in the proposed revisions to hardwood plywood Commercial Standard CS35.

Panel discussion, "Technological Changes in Plywood Machinery." Left to right: Carl D. Wheeler, 1960 president of HPI; W. T. Bramett, G. M. Diehl Machine Works, Inc.; Jack Ramsey, Darlington Veneer Company, served as moderator; and S. M. Nickey, immediate past president of the institute.

At this meeting, R. N. Hawes, HPI's counsel, reported that the failure of the Tariff Commission to give the Institute a favorable report in the Escape Clause Case was a bitter disappointment. Mr. Hawes said that an HPI witness will appear at House Labor Committee hearings on legislation to increase the minimum wage from $1.00 to $1.25. In the South plywood manufacturers' payrolls could increase by 25% and overall costs of plywood by as much as 8% if this proposed wage increase becomes law. This would price southern plywood too high to meet the competition in their markets. Mr. Hawes also stated that although 1959 domestic production of hardwood plywood is estimated as 148 million over 1958, it is only 29 million over the previous high of 1955. This is a small gain for the domestic industry when imports have increased for the same period by some 400%!

The following officers and directors were elected unanimously:

President—Carl D. Wheeler.

Vice-President—Robert J. Weber.

Managing Director & Secretary-Treasurer—(Re-elected) Clark E. McDonald.

Board of Directors for three years—1960-62. M. C. McIver, Splicedwood Corp.; S. M. Nickey, Nickey Brothers, Inc.; John M. Prince, Jones Veneer & Plywood Co.

Board of Directors for one year—1960: George R. Thompson, Algoma Plywood & Veneer Co.

Board of Directors for two years—1960-61: Walter A. Stilley, Jr., Stilley Plywood Co., Inc.

Directors who remain on the board to finish their term of office: For two years—1960-61: M. H. Speltz, Memphis Plywood Corporation; Donald H. Gott, Roddis Plywood Corporation.

T. J. Connelley, president, the Dean Company, addressing the 19th Annual Spring Meeting of the Hardwood Plywood Institute. Seated left to right are participants in a panel discussion, "What's What in Adhesives": T. D. Johnson, Reichhold Chemicals, Inc.; A. R. Johnson, Arthur D. Little, Inc.; HPI's 1959 president, S. M. Nickey; T. J. Connelley; A. B. Klinetob, Perkins Glue Company; and J. B. Hyman, Catalin Corporation of America.

Wow!

1040 HOURS

Continuous Cutting of Hardwoods Before First Sharpening

The BASIC-WITZ FURNITURE INDUSTRIES INC.

March 25, 1957

Virginia Machine Tool Company,
Bassett, Virginia.

Attention: Mr. V. G. Bryson, Superintendent

Subject: Operation and Time Study Record of V. M. T. Carbide Tipped, New Design Shear-Cut Glue Jointer Heads.

Gentlemen:

We are now able to submit a conclusive report on the performance of the subject Glue Jointer Heads.

Our closely kept records revealed that these Heads ran a total of 1040 hours, cutting woods like ash, poplar, gum and other hardwoods before it became necessary to have them sharpened.

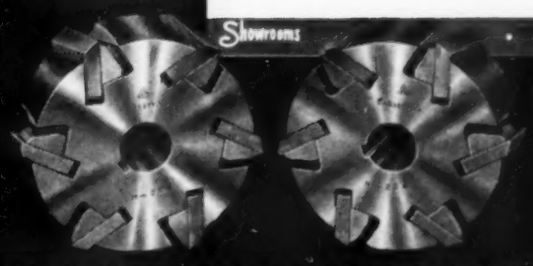
After the 1040 hours continuous operation, the knives in these heads were still in reasonably good cutting condition, but were removed at that time for the first sharpening.

We feel that such performance by any type of tool is outstanding, and we recommend, unequivocally, Virginia Machine Tool New Design Carbide Tipped Shear-Cut Glue Jointer Heads.

Robert LeFever

Robert LeFever, Superintendent
BASIC-WITZ FURNITURE INDUSTRIES, INC.
Waynesboro, Virginia

Showrooms



Standard size 6 ¼" cutting circle. 2 ¼" wide. Can be made to any specifications required with either four or six knives.

VMT SUPER SHEAR CUT HEAD WITH REPLACEABLE CARBIDE-TIPPED KNIVES for Glue Jointers, Tenon Machines, Shapers, Equalizers, Etc.

Check with us right away and step up your production — lower your costs!

Virginia MACHINE TOOL CO.

BASSETT, VIRGINIA

Precision Made Tools For The Woodworking Industry—Standard or Milled To Pattern

For one year—1960: Harold Holdsworth, International Panel Boards, Ltd. V. L. Toussaint, Perry County Plywood Corp.

The fall meeting of the organization will be held in October and at Atlanta, Georgia.

WDMA Elects Officers Charts Future Program

In mid-March more than 40 members and guests of the Woodworking Machinery Distributors' Association met in Chicago. This first meeting was well attended and provided a good opportunity for discussion of a number of problems.

Chief accomplishment may have been a better understanding between the machinery manufacturer and his distributor. Better designing through an understanding of the average utilization each machine receives was discussed by John A. Collinge, president of the G. M. Diehl Machine Works. A number of distributors suggested that their comments and recommendations to manufacturers did not receive as much attention and consideration as they deserved.

The entire tone of the meeting was optimistic about future sales; constructive as to comments about training of sales staff and advertising programs; and thought-provoking as discussion centered again and again around the theme of bringing manufacturer and customer together to help the customer with his particular requirements.

Officers elected are:

Laurence Field, president, William H. Field Co., Inc., Boston, Mass.

James T. Donnolly, vice-president, James T. Donnolly Co., Ltd., Toronto, Ontario, Can.

Robert J. Norwalk, treasurer, Star Machinery Co., Seattle, Wash.

Marie H. Lawton, executive secretary, Woodworking Machinery Distributors Association, Pittsburg, Pa.

The Code of Ethics which was presented at the meeting is very fine. Three ideas are applicable to all of our industry.

"To refrain from inducing breech of contract, or from knowingly accepting orders previously placed in good faith with competitors by their customers.

"To provide the greatest possible assistance to all those engaged in the woodworking industries, including qualified experience and counsel in the selection of their machinery requirements.

"To offer no special inducements nor render unusual services to a customer that are not regularly offered to all customers."

A joint meeting with the Woodworking Machinery Manufacturers Association is planned for September 29-30, and will be held in Chicago.

Bowater Builds Hardboard Plant

The Bowater Board Co., Catawba, S.C., has a new $7,000,000 hardboard plant under construction. Production is scheduled to begin early in June, says mill manager, John G. Robinson.

The plant at Catawba has been designed to produce 160,000,000 square feet of hardboard a year, initial production going to the furniture industry. Location of the Bowater mill at Catawba is convenient to the nation's major furniture producing area in the Carolinas.

Bowater board will be manufactured by a relatively new air-or-dry-process, which produces a smooth-on-both-sides characteristic. The air process of manufacturing hardboard utilizes high velocity air to blow chips and wood fibers used in the manufacture of the board, instead of water.

SAND CURVED PARTS FASTER!
. . . and lower finishing costs, too!

USE A

Sand-Rite "Duo" Sander

Sand Parts Like These With Ease:

- CHAIR LEGS
- TABLE LEGS
- CHAIR ARMS
- BRUSH HANDLES
- TOY PARTS
- GUN STOCKS
- DISPLAY FIXTURES
- RAILINGS

and many others

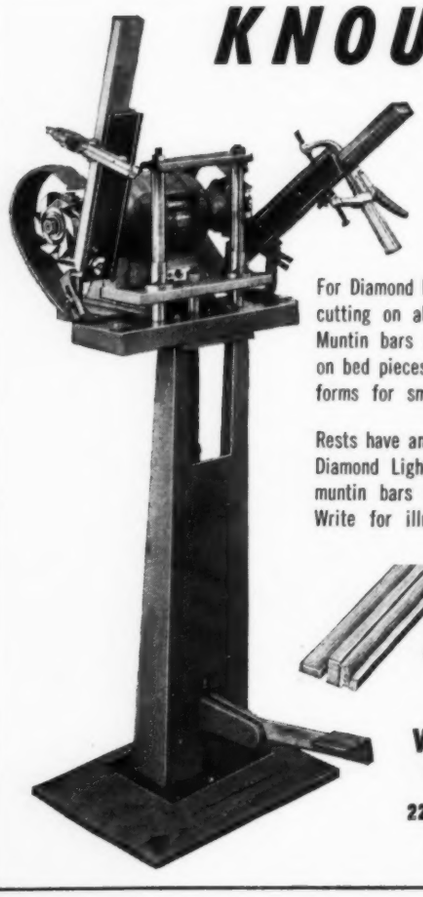
Eliminate hand sanding of irregular shapes and contours on wood parts, while maintaining high quality finishes. The inflated pneumatic drum will always conform to the contoured shape of the part being sanded.

The Sand-Rite Sander can be ordered as shown with pneumatic drum and rotary brush sanding head or with 2 different size pnuematic drums or with a single head of drum or brush. Pneumatic drums are available in 2", 3", 4" and 6" dia. and can be purchased separately as spares or replacements.

Write for full information today

SAND-RITE MANUFACTURING CO.
DEPT. W — 226 W. SCHILLER ST.
CHICAGO 10, ILLINOIS

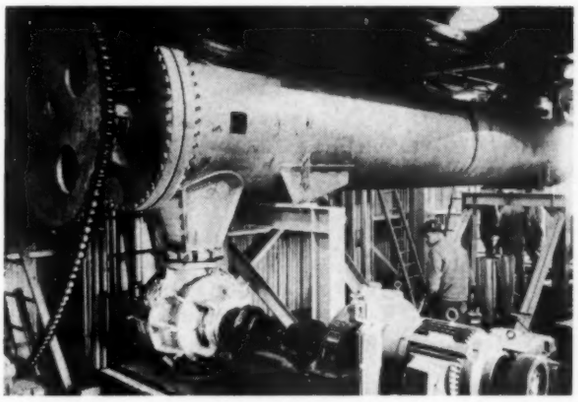
KNOUREK
ELECTRIC SASH COPER
Model 2



For Diamond Light and Fancy Sash, cutting on all angles up to 75°. Muntin bars are easily positioned on bed pieces lined with hardwood forms for smooth cutting.

Rests have angular adjustments for Diamond Light, Fancy and Square muntin bars for sash and doors. Write for illustrated circular.

Woodworkers' Tool Works
224 S. Jefferson St.
Chicago 6, Ill.



Stainless steel cooker where wood chips are steamed before being blown by high velocity air to refiners. The chips and fibers at Bowater will be conveyed entirely by air through the complete manufacturing process.

The Bowater board mill will have an exceptionally fast production cycle—producing 160-million square feet annually, based on the standard ⅛" basis. Daily production capacity of the plant soon will reach 500,000 square feet daily, utilizing 1,000 cords of wood a week.

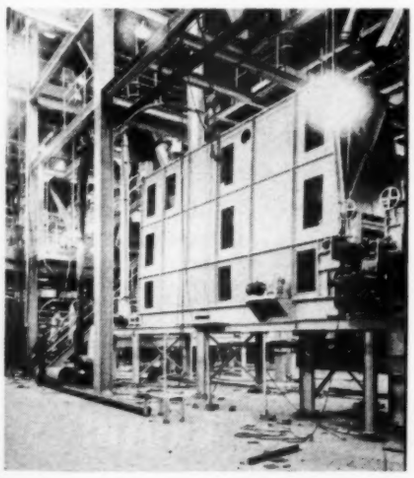
The plant will have 125 employees with an estimated payroll of $500,000 during the opening stages of operation.

The Bowater Board Company plant, a member of the Bowater Organization in North America, is situated next to the Bowater Carolina Corporation pulp mill at Catawba. Located on the Catawba river, the plant is served by both the Southern and Seaboard railroads. Wood is obtained from the heavily-forested Piedmont areas of North and South Carolina.

The Bowater board mill will require only hardwood pulpwood—oak, gum and poplar, thus creating an important new market for hardwoods which are abundant in the South.

The manufacture of dry-processed hardboards marks Bowater's first step toward diversification in North America. The Bowater Organization has produced both hardboard and insulation board for the past 30 years at plants in Athy-County Kildare, Ireland, and Kemsley, England.

To research the economics of hardboard and find a better, more modern process of making the product, the company operated a pilot-plant program in 1958 at Coos Bay, Oregon. After 17 months of operation testing the variables of producing board, the Bowater dry process was developed.



Here is one of the volumetric feeders being set up at the plant. When installed, this volumetric feeder will regulate the amount of refined wood fibers used in production of smooth-on-both-sides Bowater board.

Plywood Boat Captures First Lap In New Race

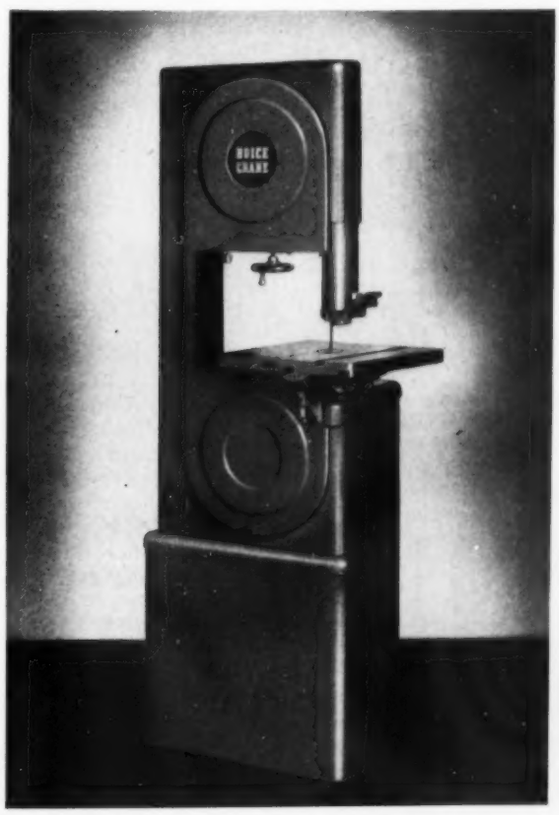
First blood in the newest battle between materials aimed at the boat market has been drawn by the Douglas Fir Plywood Association, in a two-page, full-color advertisement in SPORTS ILLUSTRATED. The ad is the first of a series taking a new approach to marine advertising.

Portions of the copy, a first-person, bylined piece by Gold Cup winner Bill Muncey, were picked up by Royal Brougham, sports editor and columnist for the SEATTLE POST INTELLIGENCER. The advertisement itself was displayed on a television program by Muncey, who said the picture of Miss Thriftway was "the best I've ever seen."

The significance of Brougham's unsolicited assistance was that he described Muncey's crash into a steel-hulled coast guard cutter during the

BEST BANDSAW BUY

When There's More than Wood to Cut



The New

BOICE - CRANE 4 - SPEED 14

- Operates at recommended speeds of leading blade manufacturers.
- Saws plastics, non-ferrous metals, synthetics, besides wood.
- Costs just a bit more than a 1-speed saw.
- 35% faster than ordinary saws. Speeds to 4100 fpm.
- Cuts smoother—leaves less edge finishing.
- 4 useful speeds as low as 1650 fpm, cut scores of materials.

N. B. Boice-Crane also offers 8-speed models for cutting hardest metals. Also 1-speed models for sawing wood only.
Let a 4-speed Boice-Crane effect big savings on your production and odd jobs.

Write For Complete Information

BOICE CRANE POWER TOOLS

BOICE-CRANE COMPANY
931 W. Central Avenue • Toledo 6, Ohio

TO IMPROVE QUALITY CONTROL ON THE SPOT!

-use the new Model 5 Moisture Meter

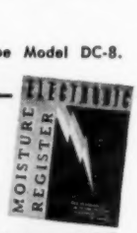
Moisture in hard and soft woods—lumber, cabinets, furniture, veneer, plywood-can be checked, anywhere, in 3 seconds. Accuracy is assured by the self-locking standard. Model 5's are checked and trimmed on the job for practical accuracy to 0% by fitting electrode to the standard, then trimming dial for perfect alignment. Any untrained operator can do it. Model 5's are portable, rugged, light-weight, battery-operated. Factory set to your needs.

For faster testing of—

- Hard and soft woods
- Peeled log to finished product
- Lumber, cabinets, furniture, veneer, plywood

Also available—
Transistorized, needle-type Model DC-8.

SEND FOR NEW TECHNICAL DATA



ELECTRONIC MOISTURE REGISTER Instruments

Moisture Register Company, Dept. WD
P. O. Box 910, Alhambra, California
Please send data on new Model 5's.

We are testing _____

in moisture range from _____% to _____%

Firm _____

By _____ Title _____

Address _____

City _____ State _____

running of the 1958 Gold Cup in Seattle. The plywood-hulled unlimited hydroplane was slightly damaged, but the cutter sank.

Here is part of Brougham's column, which was headlined "Steel vs. Plywood":

"You would never imagine wood is stronger than steel, pound for pound, but Muncey proves it by citing the spectacular incident, witnessed by a horrified multitude . . . , when Muncey took on the U.S. Coast Guard, and won.

"Rotund Bill, who has rocked, roared and skidded over 1250 miles in unlimited hydros, explains how plywood has fantastic shock resistance . . ."

Then Brougham quotes Muncey directly from the ad copy.

The advertisement is one of a series of bylined pieces planned by the trade association for use in persuading the boating public of the advantages of plywood hulls over metal or plastic.

The campaign is directed at the vast first-boat market in an effort to acquaint buyers with the facts about plywood hulls. Expert authority is used to avoid the stale claim and counter claim which has characterized much boat advertising in the past.

The ads are prepared by the Condon Company, a Tacoma, Wash., agency.

New Production Record Set By Pallet Makers

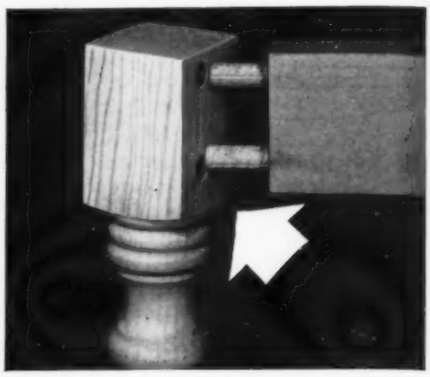
Members and guests at the 13th semi-annual meeting of the National Wooden Pallet Manufacturers Association, Hollywood, Fla., heard that the wooden pallet industry set a new all-time production and sales record during 1959.

Last year's sales in the wooden pallet industry were estimated at approximately $149,203,000, which represented a 35.5% increase over 1958 expressed in dollar volume. The previous record year for the wooden pallet industry was 1956 when $125,741,000 volume was experienced. NWPMA forecast prospects for 1960 to the extent that the wooden pallet industry might accomplish a maximum 10% increase in sales this year. "Significant in the 1959 sales gain was the fact that more new installations purchased wooden pallets than ever before," said NWPMA Executive Vice-President, William H. Sardo, Jr.

The convention approved the largest trade promotion program ever for NWPMA during 1960, and an 8% increase in the budget to finance the stepped-up pallet industry effort was adopted. Highlights of the 1960 trade promotion program include:

(1) Publication of new specifications and four new vertical grades for hardwood warehouse pallets. The new grades have well-defined differences in quality, and afford buyers a yardstick for pallet procurements.

WHAT'S YOUR WOOD PROBLEM?

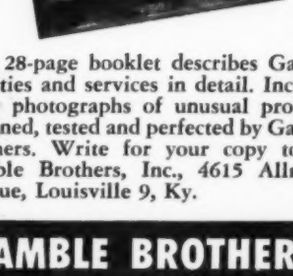


Having trouble with *inaccurate parts?*

Inaccurately-machined wood parts are never manufactured intentionally . . . but that's small comfort to the customer who receives them! There are five good reasons why the customers of Gamble Brothers aren't bothered with inaccurate machining — (1) utilization of fully-detailed drawings and specifications, (2) precision-built jigs and fixtures, (3) modern equipment, (4) experienced workmen, and (5) careful supervision and inspection.

This kind of manufacturing costs a little more — and maybe you don't need it. BUT if headache-free wood parts are worth a few cents more to you, you can benefit from Gamble's 65 years of wood-engineering experience. Write for facts, naming the improvements you'd like to make in your products.

Send for FREE booklet Illustrating GAMBLE services



This 28-page booklet describes Gamble facilities and services in detail. Includes many photographs of unusual products designed, tested and perfected by Gamble Brothers. Write for your copy today! Gamble Brothers, Inc., 4615 Allmond Avenue, Louisville 9, Ky.

GAMBLE BROTHERS
Incorporated
Louisville 9, Kentucky
If the problem involves WOOD —GAMBLE can help!

(2) Approval of a bi-monthly publication covering case histories on wooden pallet applications and new developments in the pallet industry.

(3) Approval of a cooperative voluntary advertising campaign for NWPMA members on a six-time basis during 1960.

(4) Adopted plans for the publication in 1960 of "Rules of the Road" for wooden pallet inspections.

(5) Conduct two pallet users' conferences during 1960. One to be held at the New York State College of Forestry at Syracuse, New York, in mid-August, and the other to be held in Los Angeles, California, in late November.

(6) Conduct a national sales and manufacturing clinic for the wooden pallet industry at the United States Forest Products Laboratory in Madison, Wisconsin, Nov. 15-16.

Pinkerton Corporation Now In Operation

Max Pinkerton, president of the Pinkerton Corporation, announced that his company is now in operation and ready to take in both domestic and foreign woods for custom kiln drying, surfacing and resawing. The company's new facilities are located on a 7½ acre tract adjoining the Illinois Central Grand Terminal yard at Michigan Street and Gilbert Avenue in Memphis.

All unloading, stacking and re-loading is done under cover. The materials handling system is one of the unique features of this operation. 200 kiln trucks have been built. Each kiln truck holds an average carload of lumber.

When a railroad car arrives for kiln drying the box car is routed into the unloading building where the lumber is stacked on a kiln truck. The firm's Trackmobile pulls the kiln truck to the big turn-table which revolves in any given direction. The kiln truck with the carload of lumber on it is then rolled into the company's kilns which are automatically controlled. They are fan type, compartment cross circulating kilns. Construction is under way for a 600,000' capacity.

Yard facilities are available for storage of approximately 6 to 8 million feet on tracks.

Revised Standards Announced

Revisions to two American Standards for the prevention of explosions from wood dust have been approved by the American Standards Association. They are "American Standard Code for the Prevention of Dust Explosions in Woodworking Plants," Z12.5-1959, and "American Standard Code for the Prevention of Dust Explosions in Wood Flour Manufacturing Establishments," Z12.8-1959.

The plastics industry, a large user of wood flour, is covered by "American Standard Code for the Prevention of Dust Explosions in the Plastic Industry," Z12.16-1959.

All were developed by the National Fire Protection Association, and have been approved by the American Standards Association, the coordinating body and clearinghouse for voluntary national standards.

Copies of these standards are available and may be ordered from the American Standards Association, Dept. PR 126, 10 E. 40th St., New York 16, N.Y.

Beautiful seamless legs, tapered or square, in satin brass, coppertone, pewter, chrome and plastic finishes, 3" to 28" long.

Every leg slim, seamless, strong—Beautiful lines and finishes of Wilkenson Legs add eye appeal to your furniture . . . fit in with any home decor. (Seamed legs also available at economy prices.)

All finishes rigidly tested under 80-hour salt spray—Finishes will not mar, stain, chip, corrode, peel or tarnish.

Wide variety of brackets, flanges—Legs also sold with weld-on flanges. Combination brackets permit straight or slanted positioning of legs. New self-leveling glides allow up to 1" adjustments in height.

WRITE TODAY for catalog, prices and samples to fit your specific needs. We also make legs, brackets and ferrules to your blueprints.

WILKENSON MANUFACTURING COMPANY

2916 West Lake Street — Chicago 12, Illinois

DO-IT-YOURSELF CYCLONES

SHIPPED K.D. 4 PIECES OR COMPLETELY ASSEMBLED

Steel supports or wall brackets available for all models.

36" diam.	4" or 5" inlet
40" "	5" " 6" "
48" "	6" " 8" "
60" "	8" " 9" "
70" "	10" "
75" "	12" "
80" "	14" "
84" "	16" "
92" "	18" "
95" "	20" "
102" "	22" "

- LARGER SIZES ON REQUEST
- AVAILABLE WITH RIGHT OR LEFT HAND INLETS

THE ALLINGTON & CURTIS MFG. CO. LEADERS SINCE 1886.

TOWERLINE RD., SAGINAW, MICHIGAN

Snow Does Not Stop HDMA Members

In spite of unusually bad weather, the Hardwood Dimension Manufacturers had more members present at the 31st annual meeting than ever before in the history of the association.

Held at New Orleans early in March, the members heard Mortimer B. Doyle, executive vice-president of the National Lumber Manufacturers Association, describe the present status of the National Wood Promotion Program and plans for the coming year. Another speaker was David M. Molthrop, secretary, Committee on State Sovereignty, Inc., who spoke of the encroachment of the Federal government into the field of private enterprise and states rights.

From a technical industry viewpoint, the "Wood Adhesives Clinic" was certainly a highlight. C. D. Dosker, Gamble Brothers, Inc., Louisville, Ky., served as moderator for the panel. Dr. Richard Blomquist, chemist, Forest Products Laboratory, Madison, Wisconsin, covered various aspects of gluing—materials used and procedures—in a general way.

Robert C. Gill, technical director, Peter Cooper Corporations, Gowanda, N.Y., spoke on "Hide Glues in Hardwood Dimension stock."

L. E. Clark, Technical Director, Perkins Glue Company, Lansdale, Pa., discussed "Radio Frequency Gluing." Mr. Clark also stressed the importance of preparation of stock, spreading of the glue and other preparatory procedures. He then outlined the procedures to be followed and the expected results when using radio frequency gluing.

Seated left to right: J. Edgar Kennedy, Hardwood Dimension Manufacturers Association, Nashville, Tenn., managing director; Carlton Smith, Carlton Smith Industries, Inc., Memphis, Tenn., past president; W. Hays Stanley, Hillyer Deutsch Edwards, Inc., Oakdale, La., president; and Charles T. Rhyne, Rhyne Lumber Company, Newport, Tenn., vice-president.

Standing left to right: George Stapleton, King Lumber Industries, Canton, Miss., director; Dexter D. Hulsart, Dexter D. Hulsart Co., Tuscaloosa, Ala., director; Russel A. Goodrich, E. L. Bruce Co., Little Rock, Ark., director; S. W. Anderson, Anderson Products Company, Louisville, Ky., director; V. M. Merritt, E. L. Bruce Company, Memphis, Tenn., retiring director; J. R. Tubb, III, Sparta Spoke Factory, Inc., Sparta, Tenn., director and A. F. Deneke, Himmelberger-Harrison Mfg. Co., Cape Girardeau, Mo., director.

EDMONT CASE NO. 618: Dipping window sash in Penta, $18.96 a dozen neoprene gloves lasted 2 shifts. Edmont's less expensive vinyl plastic coated glove (Monkey Grip No. 314) wore 9 shifts, reduced glove costs 84%.

Job-fitted glove cut costs 84%

No. 314 Monkey Grip 14" fully coated

In case above, the Edmont glove reduced costs because it fit the job. Monkey Grip gloves are widely used in woodworking and lumbering. They are highly resistant to abrasion, flexible and easy to wear. Safer, too, because their tough coating protects from splinters. Extra comfortable curved fingers, wing thumb pattern.

Free Test Offer to Listed Firms: Tell us your operation, materials handled and temperature condition. From more than 50 types of Edmont gloves we will recommend the one that fits your job, and send samples for testing on-the-job.

Edmont JOB-FITTED **GLOVES**

Edmont Manufacturing Company
1246 Walnut Street, Coshocton, Ohio
In Canada write MSA, Toronto

HANCHETT CIRCULAR SAW SHARPENER

MODEL **724** AUTOMATIC for RIP CROSS CUT and SMOOTH TRIM SAWS

CAPACITY 6" to 36" Dia. Saws

TOOTH SPACINGS 10 Points Per Inch to 2 Inch

BEVELS 18 to 50 Degrees

THE SMOOTHEST — FASTEST AND MOST ACCURATE

A WORKHORSE IN OPERATION WITH FULL CONTROLS FOR ALL BEVELS.

LOW PRICED — Yet the finest in Construction and LONG SERVICE

We Invite Dealer Inquiries

FEATURES

100% ball and roller bearing shafts easy access to all moving parts ease of adjustment for any short or long tooth type. Wheel head movement either cam actuated or air shift.

HANCHETT MANUFACTURING CO.

Main Office — Big Rapids, Mich.
West Coast — Portland 1, Oregon

W. Hays Stanley, Hillyer Deutsch Edwards, Inc., Oakdale, La., (newly elected president of HDMA) explained the experience of his Company in the use of polyvinyl glues.

Officers elected at this meeting included: W. Hays Stanley, president; Charles T. Rhynek, vice-president; and J. Edgar Kennedy, secretary-treasurer.

Wilner Wood Products Announces Truck Lease

A long term lease covering 20 specially-designed trucks for Wilner Wood Products Co. of Norway, Me., was recently negotiated between the company and the Hertz Corporation.

Under the contract, Wilner will lease eight Mack B61 diesel tractors and twelve 35' tandem axle trailers of various makes from Hertz.

It marks the first time that Wilner, manufacturer of wood heels and wood flours, has embarked on a vehicle leasing program, according to Charles G. Chason, Wilner president.

The company began to investigate leasing when it realized that too much time and manpower was being spent on distribution of its products.

Fuller Company Expands New Jersey Plant

An addition that will nearly double the size and capacity of the H. B. Fuller Company plant, Linden, New Jersey, has been announced.

H. B. Fuller Company of St. Paul, Minn., which manufactures adhesives at 14 plants in the United States and Canada, is adding 7,000 square feet to its Linden branch. The $75,000 construction project was started in February and will be completed by early summer.

National Wood Promotion Program's Film Ready

The National Wood Promotion Program film, "Environment for Learning," produced especially for the National Association of Manufacturers' TV program, "Industry On Parade," has been completed and is being released to 260 TV stations throughout the country. The NAM show is a Peabody Award winner for national public service and has been accepted for over-seas showing by the U. S. Information Agency and the Armed Forces Radio and Television Service.

Ten prints of the 16 mm black-and-white motion picture, with special opening and trailer credits citing NWPP participants, will be made available to NLMA's regional associations for review purposes and then sent to regional field promotion men for use in talking to school board officials and other school planners.

A special letter is being sent to 32 state and regional retail lumber dealer associations offering the use of the film from the nearest Technical Division office for any future meetings of these groups. Copies of the film may be purchased from Arthur Lodge Productions, Inc., 21 West 46th Street, New York, New York at a cost of $50 per print.

Opening on an impressive scene of eager, bright eyed youngsters in a modern classroom, the motion picture emphasizes that today's schools must actually be tools of learning that stimulate the child's desire for knowledge.

WOOD . . .
and
CLOVER ABRASIVES

Wood alone is problem enough, but wood nowadays is rarely used alone. Wood *and* adhesives, wood *and* plastic, wood *and* metal . . . these and many other combinations demand the greatest possible variety of Coated Abrasives.

That is the reason Clover Abrasives are a *find* for many woodworking factories and shops. The Clover representative nearly always has a choice of answers to the most stubborn *sanding* problem.

Ask your Clover Distributor for samples or for the new Clover Catalog, or write us direct. Clover's complete line is backed by fifty-odd years of abrasive experience.

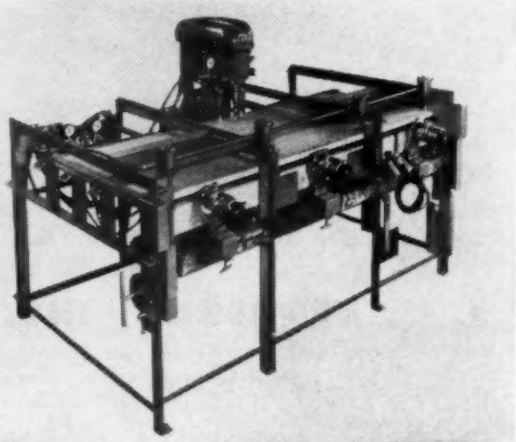
Clover Manufacturing Company

Norwalk, Connecticut

Victor 7-4515

Since 1903

Makers of the famous
CLOVER Lapping and Grinding **COMPOUNDS**

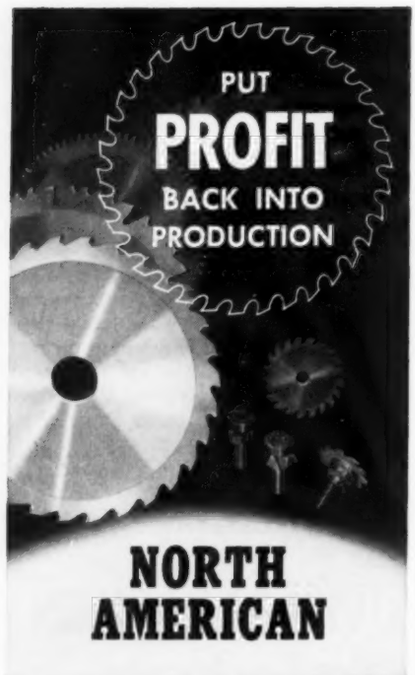


RUVO INTRODUCES A NEW PREHUNG DOOR ROUTING AND BORING MACHINE

Door and Both Jambs Machined
with Hinges Attached—In One Operation

FAST - FOOLPROOF - ECONOMICAL

RUVO ENGINEERING CO.
GLEN HEAD, LONG ISLAND, NEW YORK



CARBIDE TIPPED SAWS & FINISHING TOOLS

The right tool for the right wood, metal or plastic. Smoother cutting line, no ripping, no chipping. Makes big cuts in replacement and maintenance costs.

Write for free catalog today.

NORTH AMERICAN PRODUCTS CORP.
P.O. BOX 291B, JASPER, INDIANA

Following is a sequence showing different types of forest land resources and the various mill operations necessary to produce the lumber products used in increasing quantities in modern school construction.

The film goes on to cover such things as the pressing need for new and better school facilities, the contribution of the lumber industry in meeting this need and a number of outstanding wood schools in different parts of the country.

Borden Chemical Buys West Coast Plant Site

Purchase of land in Fremont, California, to be used as the construction site for its recently announced 90 million pound per year resins and formaldehyde plant, has been announced by the Borden Chemical Company. Land purchase arrangements include a total of 26.8 acres. The new Borden Chemical property is situated 35 miles from San Francisco, 24 miles from Oakland, and 17 miles from San Jose.

The new plant will be Borden Chemical's fifth on the West Coast. Other plants which the company operates in that region are located at Seattle, Washington; Kent, Washington; Springfield, Oregon; and Compton (Los Angeles), California. The Fremont operation will be managed by the company's West Coast Operations department, with headquarters at Seattle, Washington.

Pope & Talbot Plan Experiments

Pope & Talbot will proceed immediately with the construction of a pilot plant to experiment with the production of high quality hardboard. The plant will be located adjacent to the company's sawmill at Oakridge, Ore.

The pilot facilities will provide means for evaluating a process for manufacturing premium grade, smooth-two-sides hardboard. The test program should begin in July.

The pilot plant is another step towards Pope & Talbot's objective of complete waste utilization and product diversification.

Simpson To Build Lab

The Simpson Timber Co., Seattle, Wash., has recently announced plans to build a forest products research and development laboratory on a 10-acre tract near Bellevue, Wash. Groundbreaking is scheduled to take place this spring and the laboratory should be in operation by fall. The laboratory will be staffed by 40 scientists and technicians. It will serve 21 plants.

KIL-MO-TROL
a new kiln control

The kiln keeps operating . . . you stay outside and measure moisture content of lumber while it is in the kiln!

KIL-MO-TROL is an electrical system easily installed in any dry kiln to measure moisture content of lumber while it is drying and without a kiln shutdown.

With KIL-MO-TROL you measure the moisture content on lumber that is to be used in actual production, not sample boards. Readings are made on a meter located in the Kiln Office or on the Kiln Control Board. Both shell and core moisture content readings can be made in moments without the unpleasant task of entering a hot kiln.

The wet and dry bulb thermometer indicates temperature and humidity conditions within the kiln. Now the KIL-MO-TROL shows exactly how the lumber is drying, when the lumber is dry and when the kiln should be shut down!

IMPROVES KILN PERFORMANCE

KIL-MO-TROL shows when lumber dries fast or slow and indicates faults such as excessive or inadequate radiation, clogged traps, faulty baffling and burned out motors, which become immediately apparent.

KILN INSTALLATION LAYOUT PROVIDED AT NO CHARGE.
WRITE FOR FURTHER INFORMATION.

DELMHORST
INSTRUMENT COMPANY
638 CEDAR ST. BOONTON, N.J.

JAY BEE

GRINDERS
- WOOD SCRAP
- SHAVINGS
- WOOD FLOUR

MODEL "W" INDUSTRIAL HAMMERMILL

CONVERT YOUR WOOD WASTE TO PROFIT

Internationally Used For Over 35 Years

J. B. SEDBERRY, INC.
P. O. BOX 986 DEPT. WD
TYLER, TEXAS

WOFI Finishing Seminar

One of the major activities of the Wood Office Furniture Institute during the early part of 1960 will be to sponsor a "Finishing Seminar" at North Carolina State College in Raleigh, May 12-14.

Announcing the second annual production seminar, newly-elected president Gilbert B. Bosse said, "In this paradoxical era of capacity business but a shrinking profit margin, wood office furniture manufacturers need to search every avenue of cost reduction." To aid in this search, this finishing seminar has been especially designed for plant managers, superintendents, engineers and finishing department foremen of the Wood Office Furniture Institute.

The N.C. State College staff will present the principles of good finishing techniques and the problems of properly preparing the furniture surfaces to receive the finish. More than half of the sessions will be practical lab applications. Experts from finishing material suppliers will cover the different phases of finishing. A panel of experts on trouble shooting will consist of industry and N.C. State College staff members. New materials and finishing equipment will be thoroughly explained, along with an analysis of European finishing techniques.

The entire three days will be under the direction of Professor E. Sigurd Johnson of N.C. State's Department of Industrial Engineering. Professor Johnson has served as technical consultant to a number of European furniture manufacturers, and in this capacity has made frequent trips to the continent to inspect manufacturing techniques first hand.

Dean Buys Walnut Veneer And Lumber Firm

Through the purchase of Admiral Veneer & Lumber Co., the Dean Co., Chicago, is again actively engaged in the manufacture of walnut and other domestic lumber and veneers. The Dean Co. will market all Admiral products through its nationwide sales and service organization.

James W. Brown, who was the principal Admiral stockholder, continues as that company's president and his son Richard Brown, remains as general manager of the firm's logging and sawmill operation in Centerville, Iowa.

Appointments and Promotions

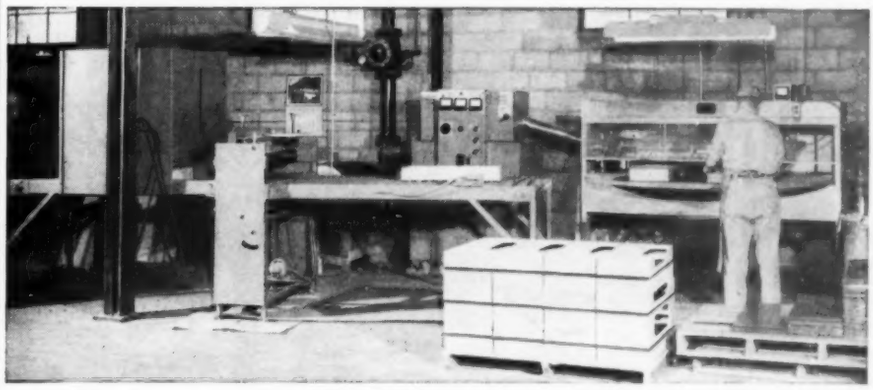
Dr. Leo S. Burnett has been named technical director of Food Machinery and Chemical Corporation's Dapon Department.

New president of the Mobile Home Manufacturers Association is **James A. Hutchinson, Jr.** He is vice-president and general manager of Knox Corp., Thomson, Ga.

Other officers for this association include **Arthur J. Decio,** Skyline Homes, Inc., Elkhart, Ind., vice-president; **F. A. McCallum,** Detroiter Mobile Homes, St. Louis, Mich., secretary; and **Max Herrli,** Herrli Industries, Inc., Elkhart, Ind., treasurer.

Dave James has been named director of public relations for Simpson Timber Co., Seattle, Wash. **Oscar Levin,** former managing forester of Simpson Olympic Tree Farm, succeeds James as public relations director of Simpson Logging Co., Shelton, Wash. Levin's former position has been filled by **William S. Looney,** who had been assistant managing forester at the Tree Farm.

At the annual meeting of the Atlantic Lumber Co. **Thomas J. McHugh,** who



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The new Union High Frequency Gluing Line is actually *three times faster* than clamp-type gluing methods. It slashes labor costs too, because one man can handle the entire job unassisted.

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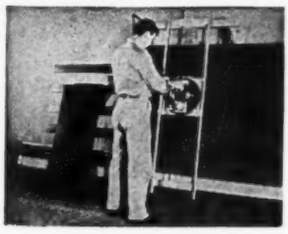
THE HIGHEST QUALITY
WOODWORKING MACHINES



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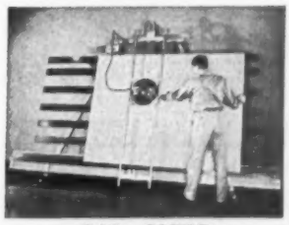

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has served as president for 30 years, moved up to become board chairman. **Edward L. French** was elected president. Vice-president in charge of production is **Park G. Vestal** and **A. Boynton Glidden** is vice-president in charge of Canadian operations. All other officers were re-elected.

Mrs. Rosalie M. Koch, Arlington, Va., is a new director of a new division for American Forest Products. The division is the Women's Affairs Division which aims to serve various women's groups interested in conservation of forests. Mrs. Koch has held several positions which specifically qualify her for this new work. Among them is that of information analyst and women's affairs in the Office of the Chief of Naval Operations, Washington, D.C.

William J. Collings, Bremerton, Wash., has joined the Weyerhaeuser Company in Tacoma, Wash., as a public information representative.

Prescott

Flanders

H. Jack Flanders is now representing the S. A. Woods Company, Boston, Mass., in the entire southeastern and southwestern states. His headquarters will be at 909 Boyle Bldg., Little Rock, Ark.

Reiss Associates, Inc., Lowell, Mass., plastic sheet manufacturer, announces the appointment of **Harold A. Prescott** as general sales manager. He was formerly midwest sales manager.

Schuster

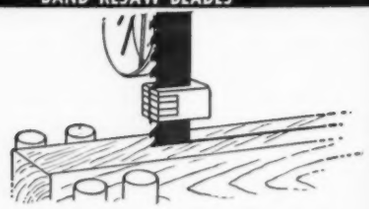
Daly

Gordon L. Schuster has been named president of Timesavers, Inc., Minneapolis, Minn. He succeeds **R. F. Pendergast,** founder of the company.

Nordson Corporation, airless spray coating equipment manufacturer, has named **Kenneth Daly** as vice-president. Daly was formerly general manager of the Western Automatic Screw Co.

Elford Plywood Machinery, Inc., Portland, Ore., has announced the appointment of **W. H. (Bill) Brace** as sales

BAND RESAW BLADES



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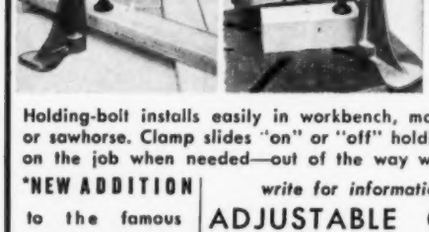

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GRAND RAPIDS 2, MICHIGAN

Anderson

Brace

Yates

Stewart

Stone

Hollowell

manager. Brace was formerly associated with Atkins Saw Div., Borg-Warner Corp.

Conley C. Stewart, former vice-president of Johnson and Johnson, has been named to the executive staff of the Kroehler Mfg. Co. as production equipment engineer. Mr. Stewart will replace **Torbin Yates** who has left the woodworking industry to become executive vice-president of Springfield College, Springfield, Mass.

K. A. Anderson has returned to Mereen-Johnson Machine Co. as assistant sales manager. He will be assisting **C. R. Johnson.**

Boice-Crane Co. announces the appointment of **Carlos W. Stone,** 2003 Parley's Canyon Blvd., Salt Lake City, Utah, as factory representative for the firm in the area of Colo., Utah, Ida., Wyo. and Mont.

Robert E. Hollowell, Jr., has been elected president of the Hardwoods Exhibit, Inc. He is vice-president of Pierson-Hollowell Co. o fIndianapolis. Other officers elected at the meeting were: vice-pres., **W. W. Gamble,** Yawkey-Bissell Hardwood Flooring Company, White Lake, Wis.; secretary, **Franklin Griffin,** Franklin T. Griffin Co., Chicago; and treasurer, **George F. Wilhelm,** R. S. Bacon Veneer Co., Chicago. The Hardwoods Exhibit is a permanent $500,000 exhibit located in the Museum of Science and Industry, Chicago. It is supported by the entire hardwoods industry and plays host to over three million visitors annually.

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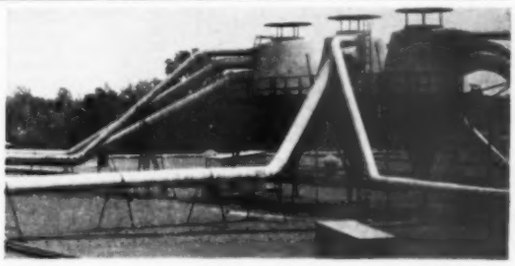

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Moulders & Stickers—Fay & Egan No. 209 and No. 226; Mattison No. 229 all-electric; Hermance 12"; Fay & Egan No. 189 4-side; XL Moulder
Planer—Jossia-Ross 24" 2-knife single
Planer-Matcher-Moulder—Newman 8-B
Rod & Dowel Pointers—Bignell; Fay & Egan No. 7 Rod
Sanders—Fay & Egan No. 359 42" 2-drum; Yates No. 401 42" 3-drum; Beach 38" 2-drum
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Jointer: band saw, Ripsaw & Mortiser BB all $300
Lathe: Wood 12-in. MD, $75
Molder: American 6 in 4 side $200
Planer: R & H 26 in. 15 HP mtr. $350
Router: floor model $110
Sander: Wysong Miles sgl. spdl. DMD, $135
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Borers, Indiana 2 spdle horiz. dmd.
Borers, Andrews 3 spdle horiz. bd.
Borers, Andrews Sgl. Spdle. dmd.
Borers, Greenlee No. 370—5 Ft. 6 Spdle. Horiz. DMD.
Borers, McKnight 88C, Chucking DMD.
Borers, Moak & Pryble 2 spdle., horiz.
Borers, Root D-366 horiz. 13 spindles dmd.
Carver, Yates-A Sgl. Spdle. bb. dmd.
Clamps, Taylor 30 Sec. 6½ Ft. Cat. 6" Jaw Clamps
Clamps, Black Bros. 40 Sect. 8 Ft. Cat. 5 Clamps sec.
Clamps, Handy No. 71 revolving Case, Air Oper.
Clamps, Lancaster No. 100C Case
Clippers, Coe 88" bd and motor
Dovetailers, Dodds 10-15 & 20 Spdles
Frequency Changers, 25-33 75, DMD.
Glue Jointer, Yates No. 213 & Jenkins 343-A, bb, dmd.
Glue Spreaders, Francis 12" Sgl. Roll, V-drive
Glue Spreader, Francis 60" SPD rub. rls.
Grinder, Buffalo 76" knife dmd.
Jointers, F&E 12" bb, v-belt dr.
Jointers, New Moak 12", bb, dmd.
Jointers, 8" and 16", 24" & 30" & 12"
Lathes, Mattison 57D bb. dmd.
Lathes, Whitney back-knife, BB, V-drive
Mortiser, New Brjtain No. 7 bd. & motor
Mortiser, W & M No. 284 Sgl. Spdle. bb. dmd.
Moulders, Amer. No. 35—10" BB, DMD.
Moulders, Hermance 12" BB. BD & Motor
Moulders, Vonnegut 4" & 12" elec. bb. dmd.
Moulders, Woods 137M—8" electric
Planers, Berlin 36" round belt dmd.
Planers, Buss No. 4—30" single, bb. dmd.
Planers, Buss 30" double, bb vee-belt & motor
Planers, Whitney No. 29—36" Sgl. bb. dmd.
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Jointers: 24" Oliver, Yates & Crescent
Jointer: 30" Berlin, Babbitt Bearing
Mortiser: Chain, New Britain No. 2, with motor
Mortiser: Hollow Chisel Crescent, DMD
Mortiser, Millbury Pullet for Window Fr. & Mtr.
Moulder: 12" Y & F Belt Drive, Babbitt Bearing
Morgan 3 Head Corrugated Driver, M.D.
Nailers: Morgan 8 track, 26" Open Back with cleaters
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Planer: Sgl. Crescent No. P24—24x8" M.D.
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Radial Saw: DeWalt 5 HP Floor Type, NEW
Radial Saw: Delta 5 HP Floor Type, NEW
Rip Saw: Dependable No. 112, Roll Feed, M.D.
Saw Cut-Off Swing: H & A No. 5, with motor
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Shaper: Dbl. Spindle Whitney No. 50A, with Frequency Changer
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Tenoners: Sgl. End American No. 1, H & B No. 55

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Borer, Moak two spindle, horiz., air oper.
Clamp, Black Bros. No. 200 sash & door, air operated
Clamp, Handy No. 944 door, air operated
Clamp Carriers, Taylor, Palmer, Billstrom
Clamps, Handy and Buss portable, drawer
Frequency Changers, 15 KW, 20 KW, 25 KW
Gluing & Veneer, Diehl No. 890 Tapeless Veneer Splicer
Jointer, Diehl No. 69 Veneer
Jointer, Diehl No. 660 Chain Feed Glue
Jointer, Jenkins 8' Saw type veneer
Jointer, Porter 20" hand, ball bearing, V-belt drive
Jointer, Porter No. 700 Surfacemaster 24", direct motor drive
Jointer, Porter Facing Planer with Jackson & Church feeder
Lathe, Oliver hand turning
Mortiser, Bell No. 80C hollow chisel, 6 spindles, air feed
Mortiser, Bell No. 80 chain, multiple head, air feed
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Moulder, Vonnegut 4" and 9", direct m.d.
Moulder, Mattison No. 276, 6"
Moulder, Oliver No. 202, 4" x 2", ball bearing, direct motor drive
Moulder, Woods No. 137M, 6", ball bearing, direct motor drive
Planer, Buss No. 208, 20", single
Planer, Buss No. 44, 30", single
Planer, Crescent 24", single
Planer, Porter No. 405, 24", single
Planer, Buss 36", double, motor drive
Planer, Greenlee No. 120, 30", 8-roll, ball bearing, direct motor drive
Planer, Whitney No. 97, 36", double, ball bearing, direct motor drive
Planer-Matcher, Vance Model 67, belt drive
Presses, Handy & Francis sectional screw
Press, Francis 30" x 40" hydraulic cold
Presses, Farquhar hot plate, 40" x 40", 25" x 25", 10 openings
Router, Onsrud Type W-147E radial arm
Router, Porter No. 612
Sander, Nash No. 87 automatic
Sander, Nash No. 10 automatic
Sander, Curtis Model 8 hand stroke, belt
Sander, Jefferson hand block, belt
Sander, Oliver No. 185-D moulding type, bt.
Sander, Oakley Model F semi-auto., belt
Sander, Ekstrom-Carlson No. 112 oscillating edge
Sander, Smith No. 505-B 43" endless bed, ball bearing, direct motor drive
Sander, Peerless flat bed
Sander, Timesaver 50" top
Sander, Pearson Model A
Band Saw, Tannewitz Type G1, 36", ball bearing, V-belt drive
Band Saw, Tannewitz Type R1, 42", ball bearing, V-belt drive
Saws, Buss, 86" double cut-off, hand feed
Saw, Bell No. 12B double miter and cut-off
Saw, Diehl No. 725 air operated automatic
Saw, Porter No. 43-20J and No. 43-30J hydracut saws
Saw, Oliver No. 88-D tilting arbor, table
Saw, Yates-American B-89 tilting arbor
Saw, Tannewitz Type DM dbl mtr & cut-off
Saw, Diehl No. 75 chain feed rip
Saw, Hermance No. 300-G—8" gang rip
Shaper, Moak single spindle
Shaper, Whitney No. 393 sgle spdle, auto.
Shaper, Whitney dbl. spdl., b.b., belt drive
Tenoner, Challoner No. 70 dbl end, d.m.d.
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Moulder, Mattison No. 224 10" B.B. Elec.
Moulder, Mattison No 229 10" B.B. Elec.
Moulder, Vonnegut 6" B.B. Elec.
Moulder, Woods No. 133M 12" B.B. Elec.
Moulder, Woods No. 132 10" B.B. B. Dr.
Moulder, Newman No. 412 12" B.B. Elec.
Moulder, Yates-Am C-89 10" B.B. Elec.
Surfacer, Buss No. 4 44" B.B. Elec. Sgl.
Surfacer, Whitney 40" B.B. Elec. Sgl.
Surfacer, Greenlee No 110 B.B. Elec. Sgl.
Gang Rip, Hermance No. 300G 9" B.B. Elec.
Straight Line Rip, Diehl No. 75 B.B. Elec.
Tenoner, Jenkins No. 96 90" Dbl. 12 Hds.
Tenoner, Fay & Egan No. 505 Sgl. 2 Hds.
Tenoner, Greenlee No. 530 Sgl. 2 Hds.
Mortiser, Bell No 80 96" 12 Heads Elec.
Mortiser, Oliver No. 92-D Single Elec.
Sander, Smith No. 404-B 42" Endless B.
Saw-Band, Tannewitz GH 36" B.B. Elec.
Saw-Double Cutoff Beech 5' and 8'
Saw-Double Cutoff Yates-Am. No. 2 8'
Router, Porter No. 666 20,000 r.p.m.
Shaper, Single Porter No. 105 7200 r.p.m.
Shaper-Double, Whitney No. 135 & 150.
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Greenlee No. 356 foot feed vert. single
Root G300 heavy duty hyd., vertical, single
Root CCXH 10'x22" double col. vert. univ. mult.
Root K power-feed horizontal, single

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Handy No. 70—78-in. Revolving case clamp
Handy No. 454, 10-ft. 2-way air sash-door.
Lancaster No. 800 Duncan Phyfe ped. clamp
Taylor No. 90, 12', 12 sec. clamp carrier

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Y-A Model M-7 universal cutterhead grinder

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American No. 1, 12-in. ball-brg., dir. m-d.
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Blount D-13, 12 in. x 8 ft. hand turning

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Bell No. 80A multiple chain saw, 5 heads
Wysong & Miles No. 321 foot feed, hol. chisel
Wysong & Miles No. 284 auto. hollow-chisel
Wysong & Miles No. 288, 5-sp. horiz. d.m.d.

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American No. 3, 6" 4-side, motor driven
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Whitney No. 32, 30-in. ball brg. sgl., d-m-d.

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Wysong & Miles No. 273 universal belt sander
Wysong & Miles No. 294 auto. stroke m-dr.
Mattison No. 124 auto. stroke sander, m-d.
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Vonnegut SEM wide double end spindle sander
Pearson Model A Moulding Sander, m-d.
Lancaster No. 600 Drawer Sander, m-d.

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Bell No. 216 cut-off saw, motor-driven
Beach No. 3 double-end cut-off saw, m-dr.
Oliver No. 88-D tilt arbor saw, slide table
Yates-American No. 1 tilt table saw, d-m-d.
Oliver No. 173-B jig saw, motor driven

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Mattison No. 207 chain feed rip, motor-dr.

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Yates-American 10" C-89 Electric Moulder
Yates-American 9" C-55 Electric Moulder
Yates-American 9" No. 35 Electric Moulder
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Newman 10" No. 412 Electric Moulder
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Timesaver 24" Sander
Wysong & Miles No. 171 direct motor driven ball bearing belt sander
Wysong & Miles 603 Automatic Stroke Sander
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Yates-American No. GG-3 direct motor driven ball bearing roller table double cut-off saw
Yates Type F-25 Variety Saw

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Whitney No. 282 Single Spindle Electric Shaper
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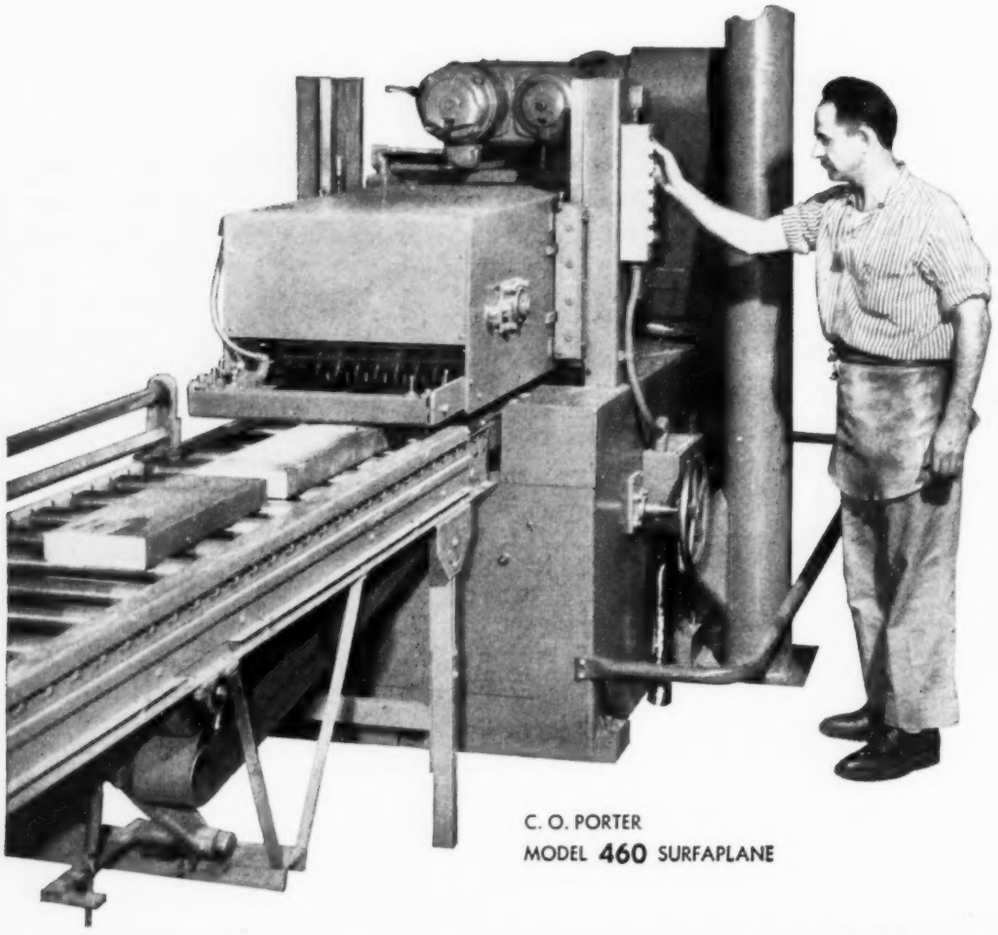

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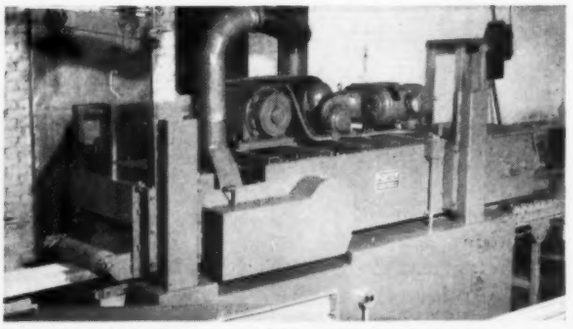

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Company .....

Products manufactured .....Approx. No. Plant Employees.....

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City ..... Zone..... State.....

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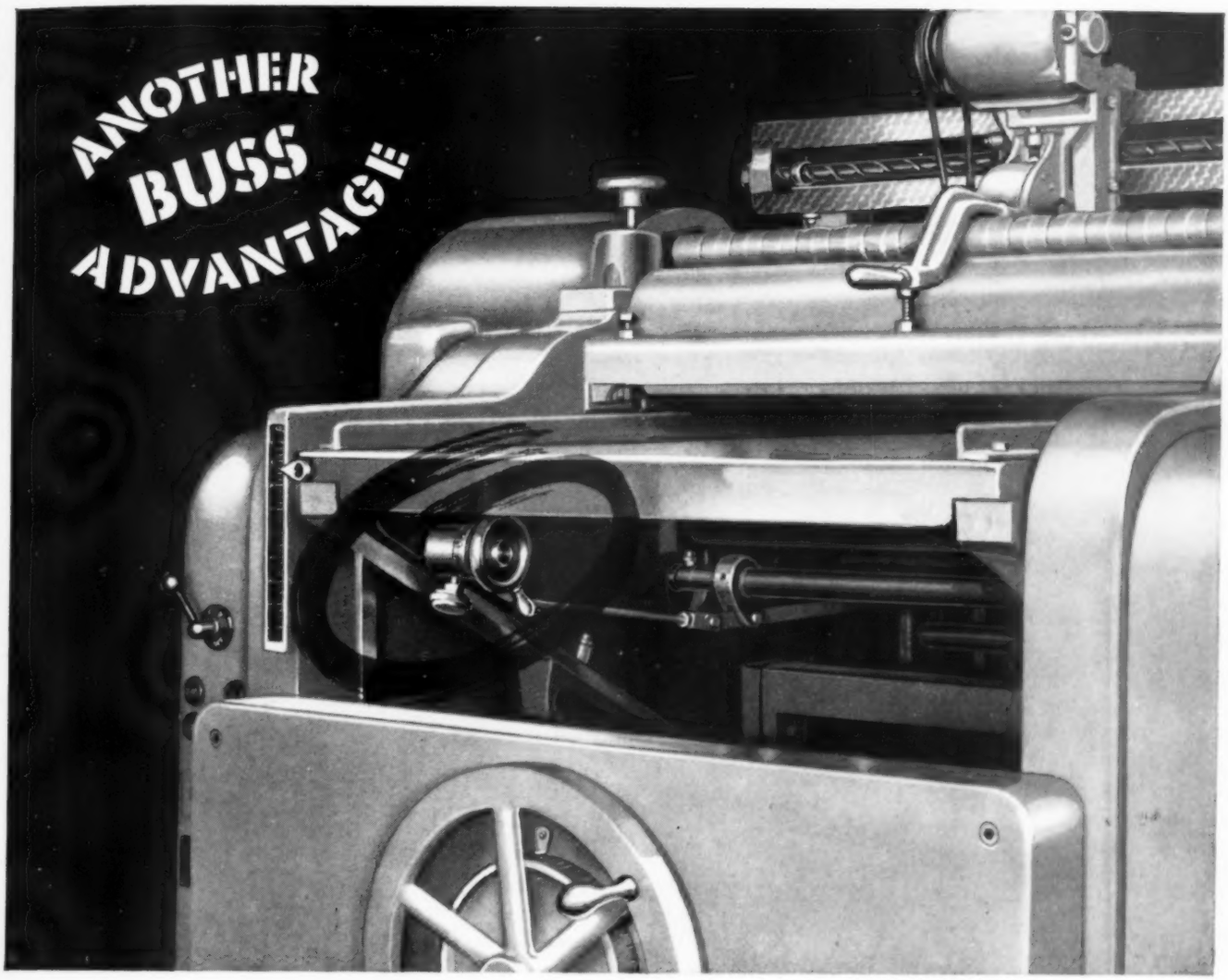

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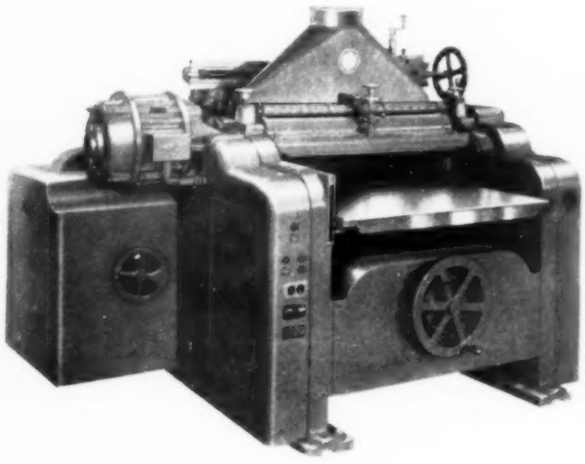

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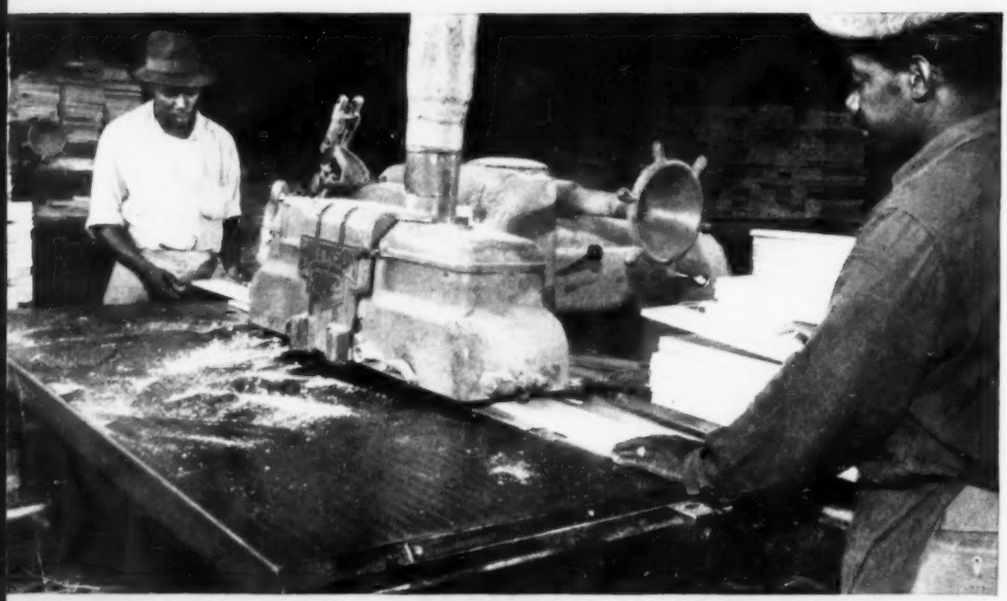

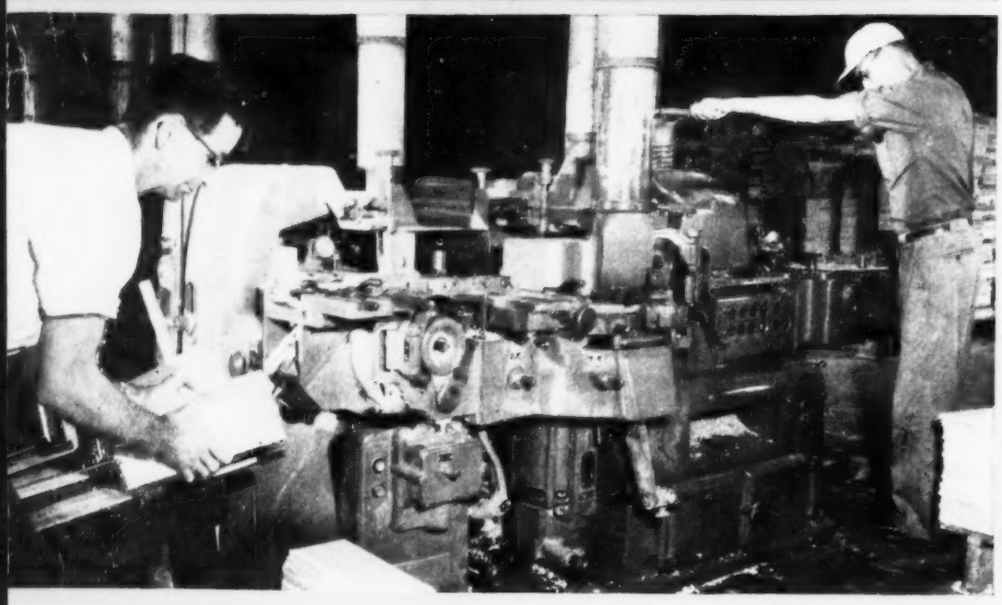

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